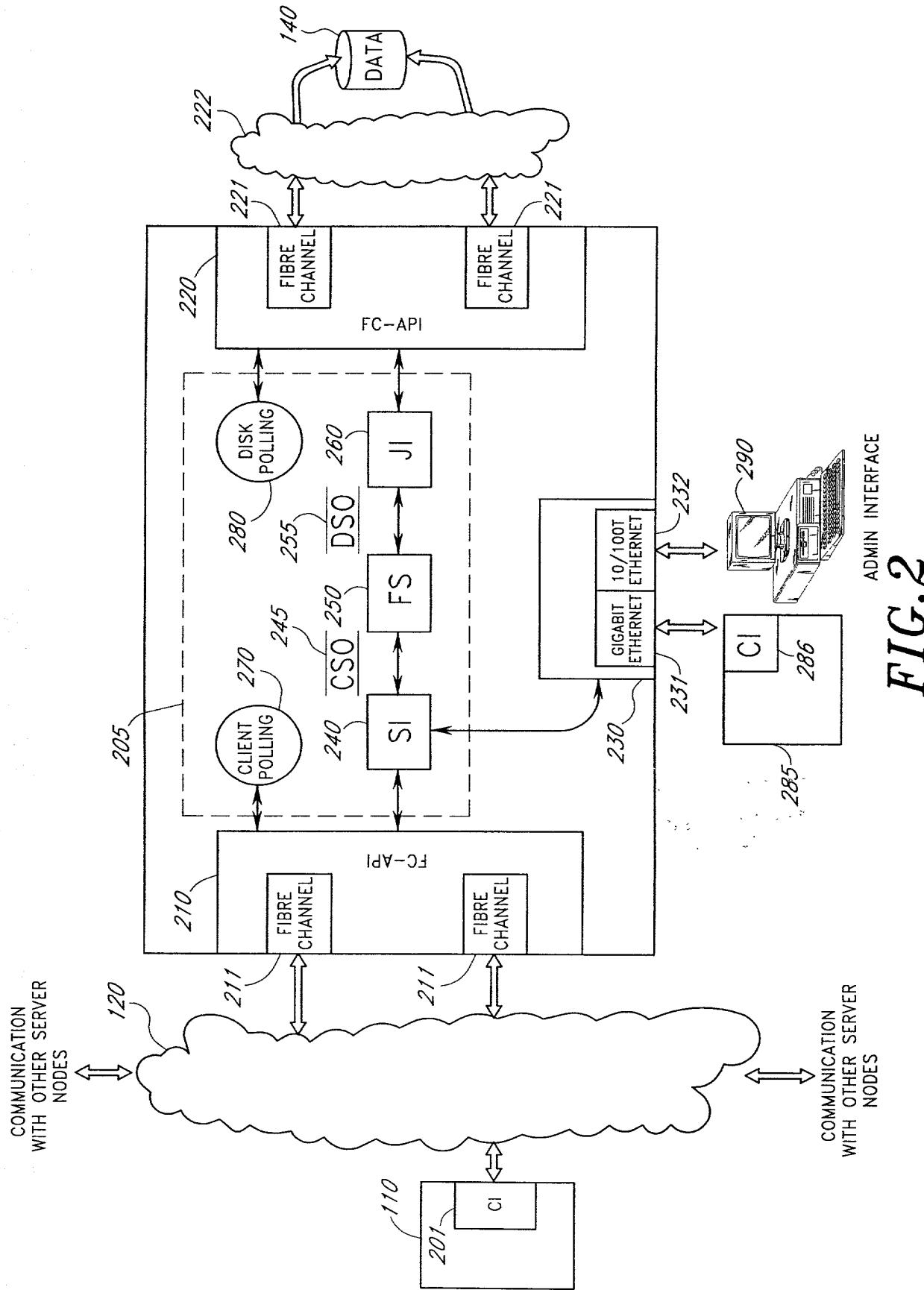


FIG. 1



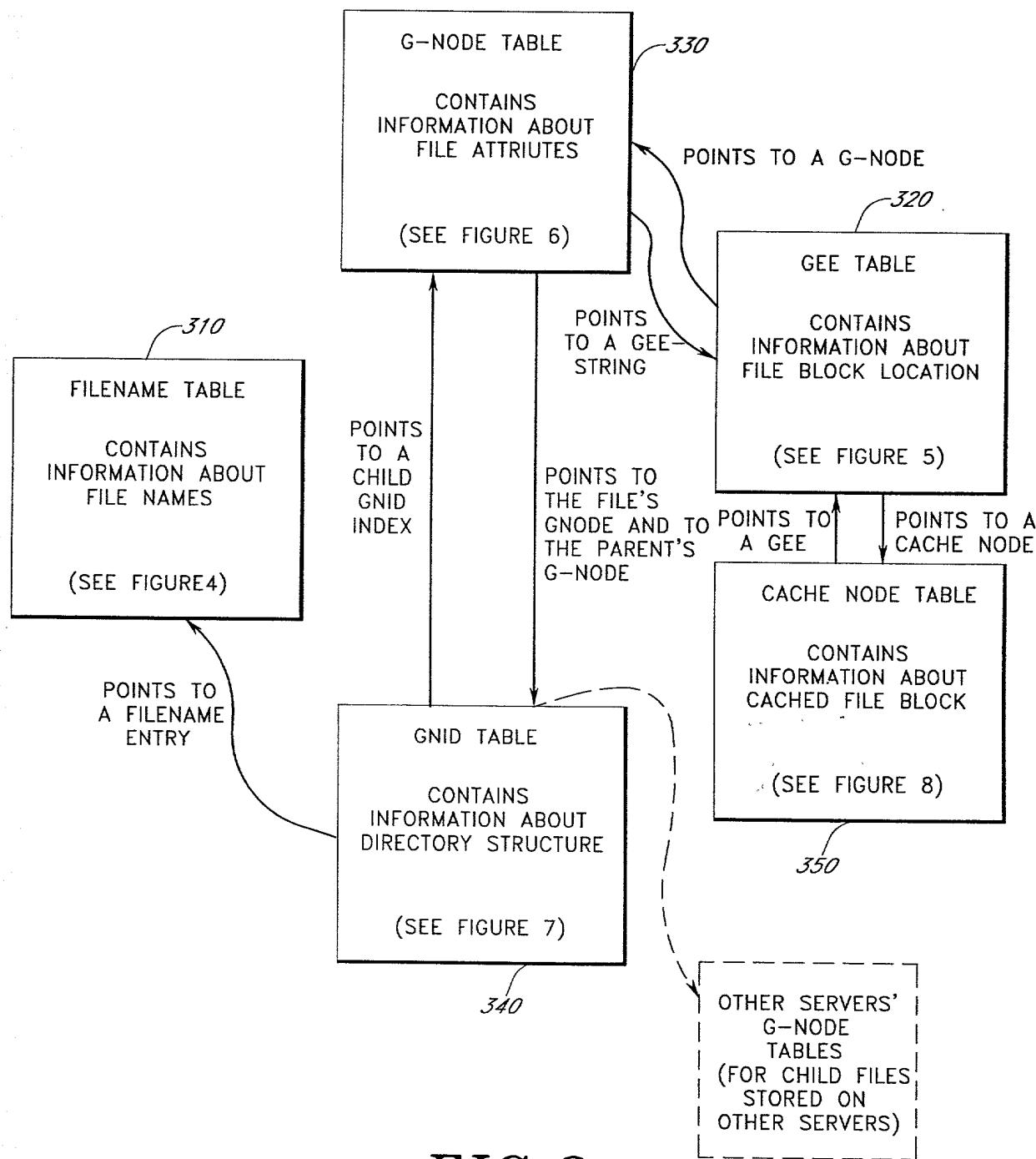


FIG. 3

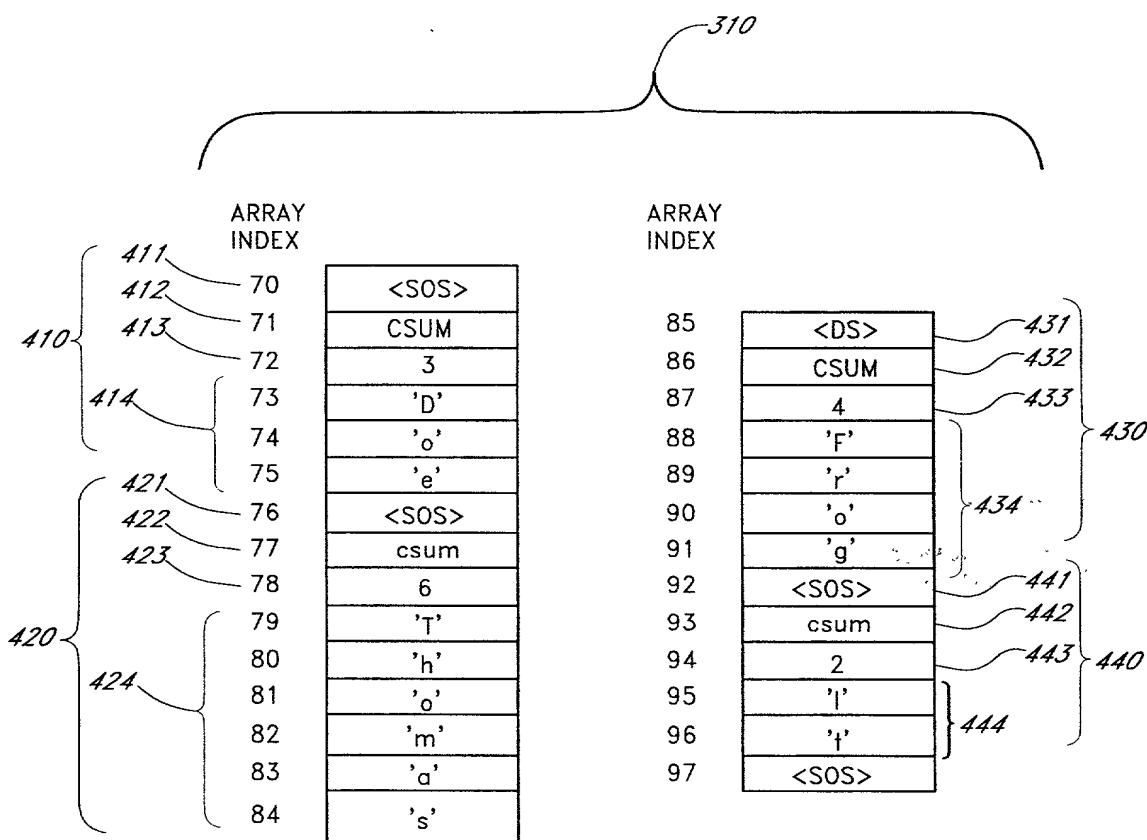


FIG. 4

INDEX	G-CODE	DATA	FILE LOGICAL BLOCK
510	45 GNODE	GNODE=67, EXTENT=2, ROOT=TRUE	
511	46 DATA	DISK LOGICAL BLOCKS: 456,457 DRIVE 13	1
512	47 DATA	DISK LOGICAL BLOCKS: 667,668 DRIVE 15	2
513	48 DATA	DISK LOGICAL BLOCKS: 112,113 DRIVE 19	3
514	49 PARITY	DISK LOGICAL BLOCKS: 554,555 DRIVE 2	550
515	50 DATA	DISK LOGICAL BLOCKS: 458,459 DRIVE 13	4
516	51 DATA	DISK LOGICAL BLOCKS: 669,670 DRIVE 15	5
517	52 DATA	DISK LOGICAL BLOCKS: 119,120 DRIVE 19	6
518	53 PARITY	DISK LOGICAL BLOCKS: 556,557 DRIVE 2	
519	54 LINK INDEX 76	...	
520	
521	76 GNODE	GNODE=67, EXTENT=3, ROOT=FALSE	500
522	77 DATA	DISK LOGICAL BLOCKS: 460,461,462 DRIVE 13	7
523	78 DATA	DISK LOGICAL BLOCKS: 671,672,673 DRIVE 15	8
524	79 PARITY	DISK LOGICAL BLOCKS: 121,122,123 DRIVE 19	
525	80 LINK INDEX 88	...	
526	
527	88 GNODE	GNODE=67, EXTENT=3, ROOT=FALSE	
528	89 DATA	DISK LOGICAL BLOCKS: 463,464,465 DRIVE 13	9
529	90 DATA	DISK LOGICAL BLOCKS: 674,675,676 DRIVE 15	10
530	91 PARITY	DISK LOGICAL BLOCKS: 124,125,126 DRIVE 19	
531	92 GNODE	GNODE=43, EXTENT=4, ROOT=FALSE	
532	

FIG. 5

ATTRIBUTE DATA	
602	FILE ATTRIBUTE-TYPE
604	FILE ATTRIBUTE-MODE
606	FILE ATTRIBUTE-LINKS
608	FILE ATTRIBUTE-UID
610	FILE ATTRIBUTE-GID
612	FILE ATTRIBUTE-SIZE
614	FILE ATTRIBUTE-USED
620	FILE ATTRIBUTE-FILEID
622	FILE ATTRIBUTE-ATIME
624	FILE ATTRIBUTE-MTIME
626	FILE ATTRIBUTE-CTIME
628	CHILD GNID INDEX
630	GEE INDEX-LAST USED
631	GEE OFFSET-LAST USED
632	GEE INDEX-MIDPOINT
633	GEE OFFSET-MIDPOINT
634	GEE INDEX-TAIL
635	GEE OFFSET-TAIL
636	GEE INDEX-ROOT
638	GNODE STATUS
640	QUICK SHOT STATUS
642	QUICK SHOT LINK

FIG. 6

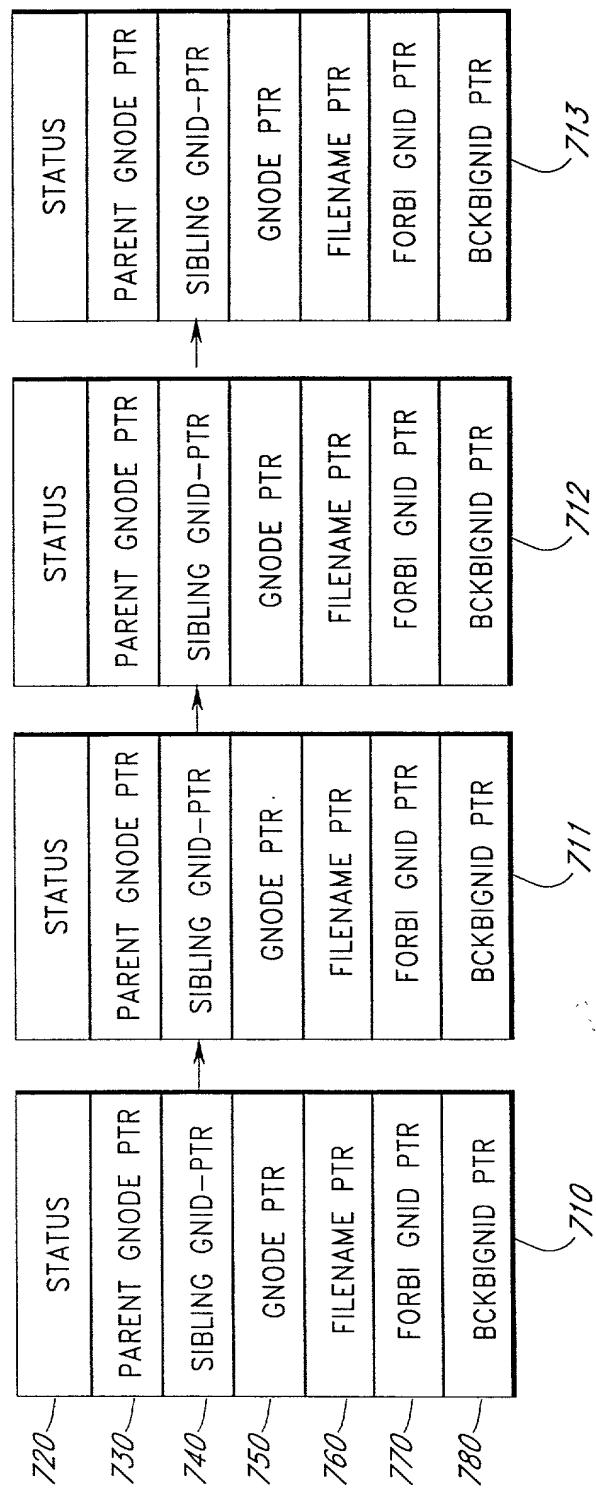


FIG. 7

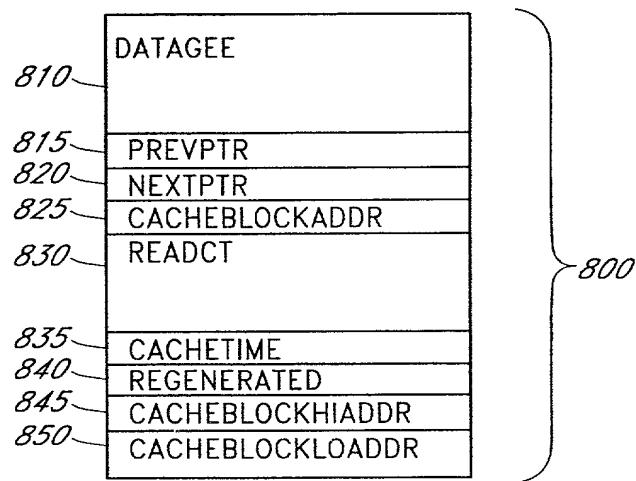


FIG. 8A

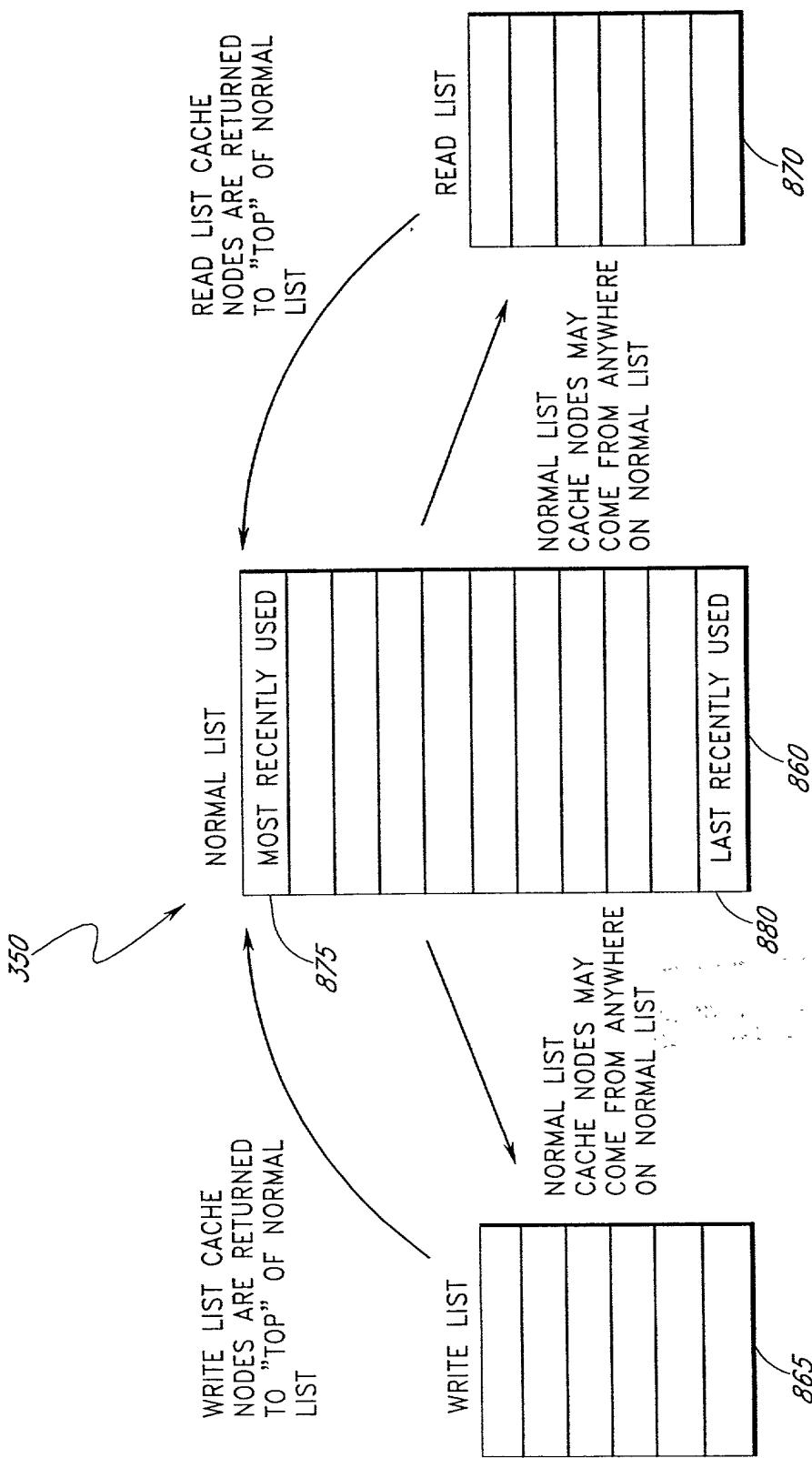


FIG. 8B

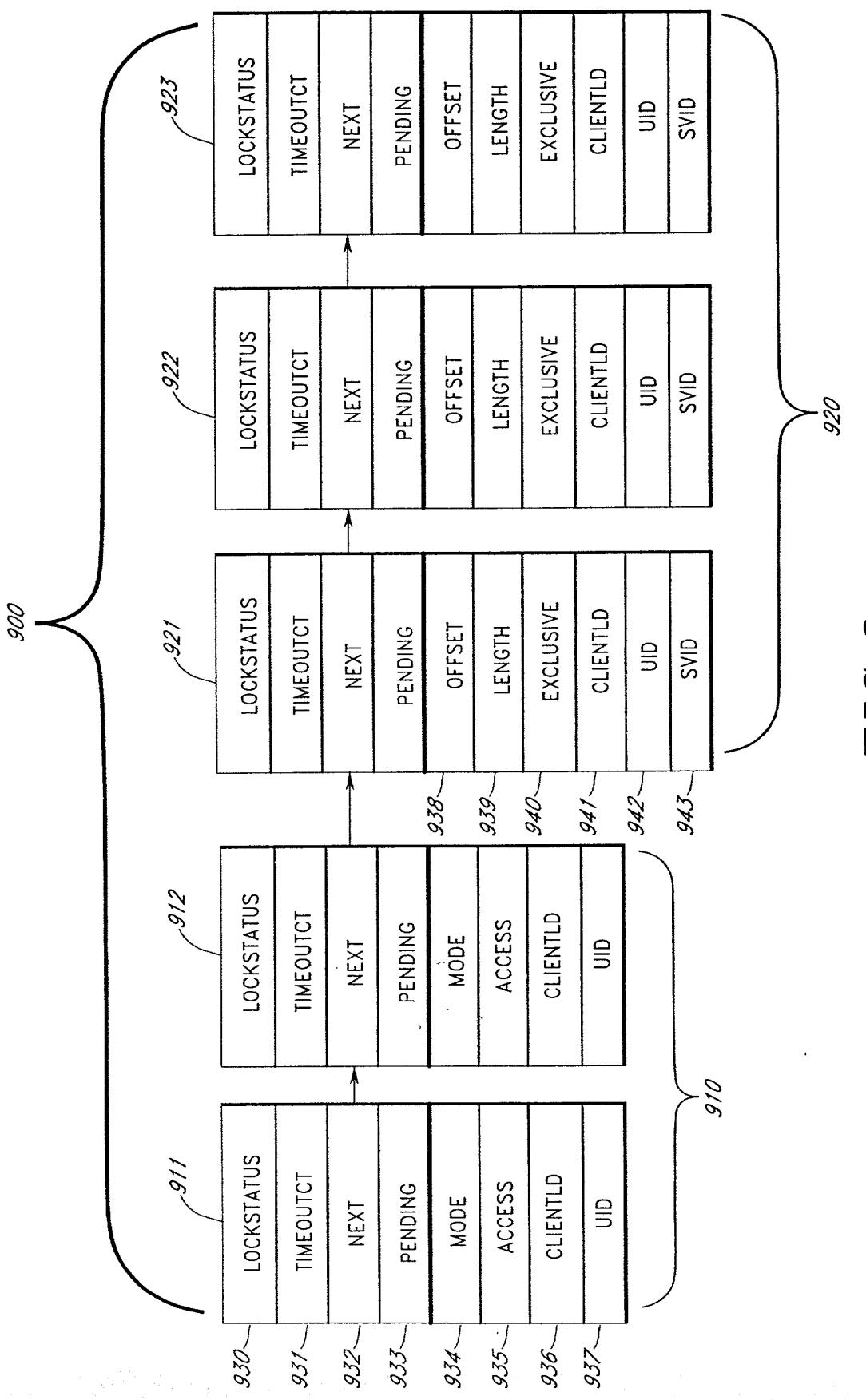


FIG. 9

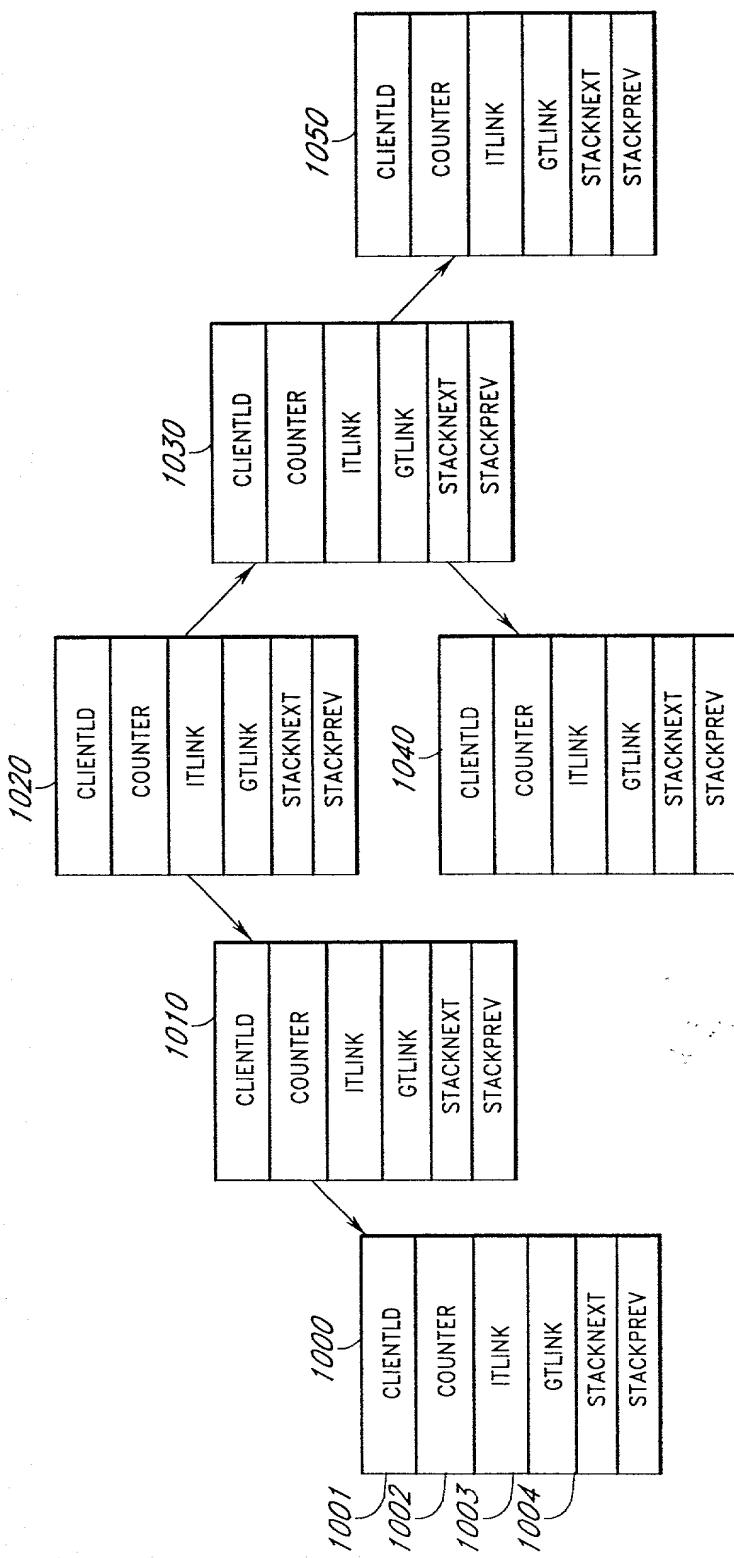


FIG. 10

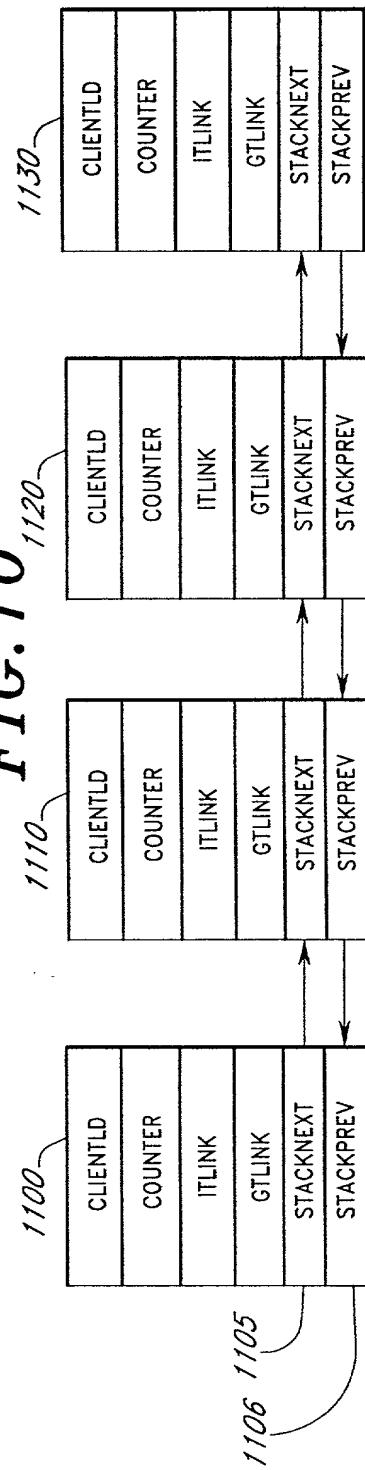
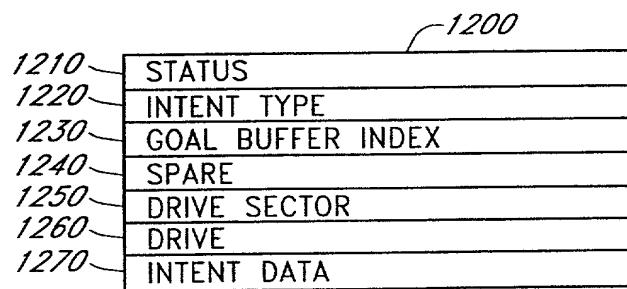
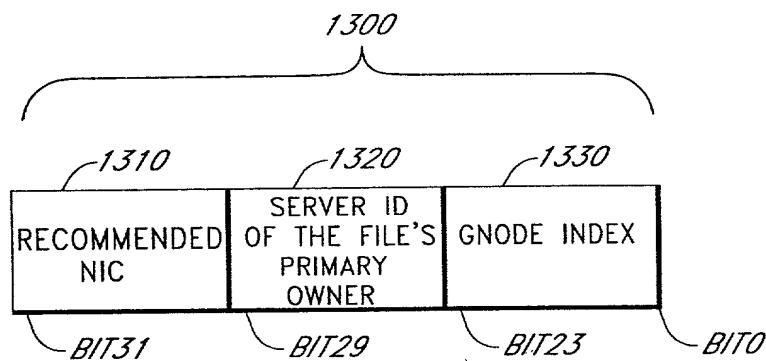


FIG. 11

*FIG. 12**FIG. 13*

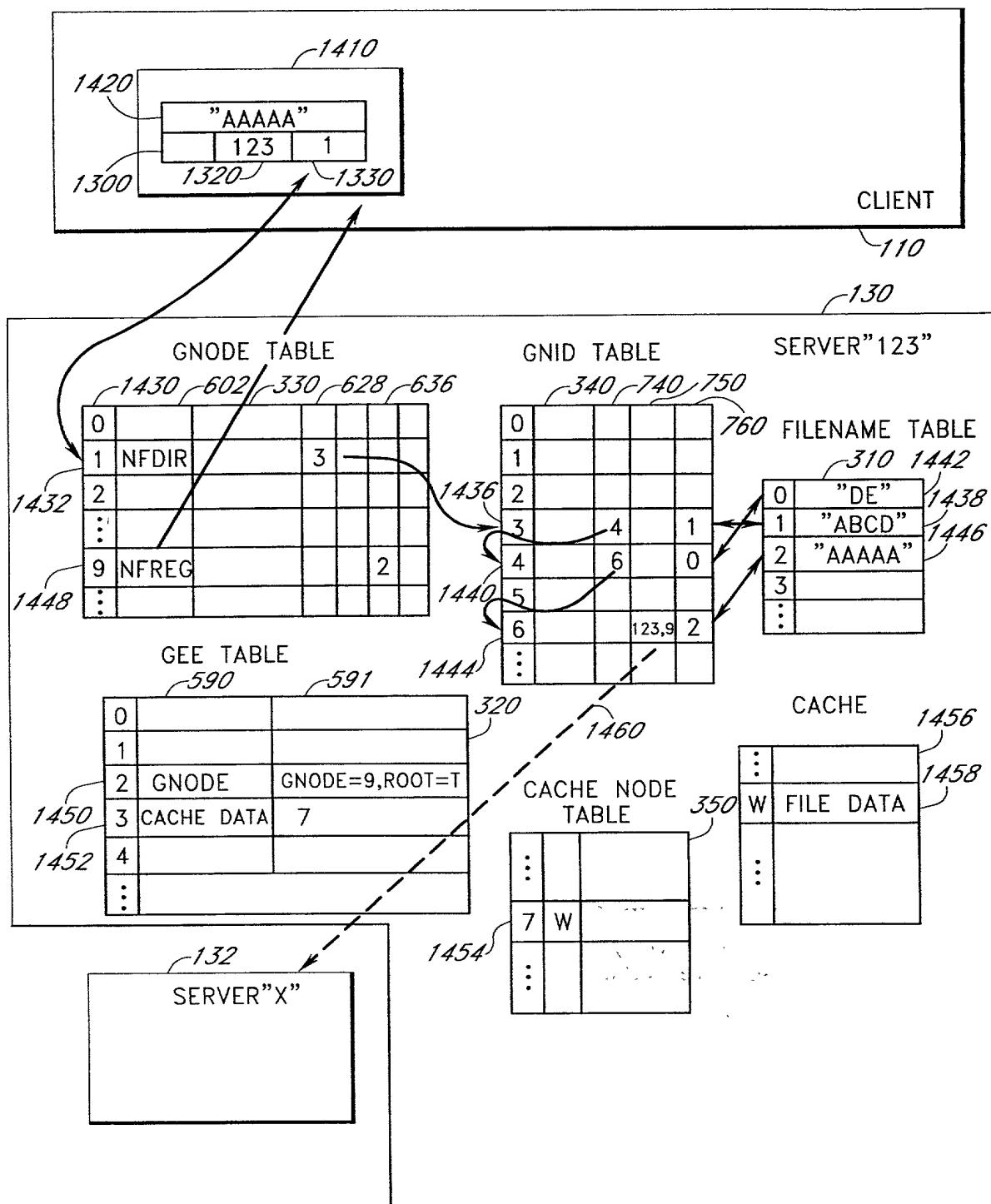


FIG. 14A

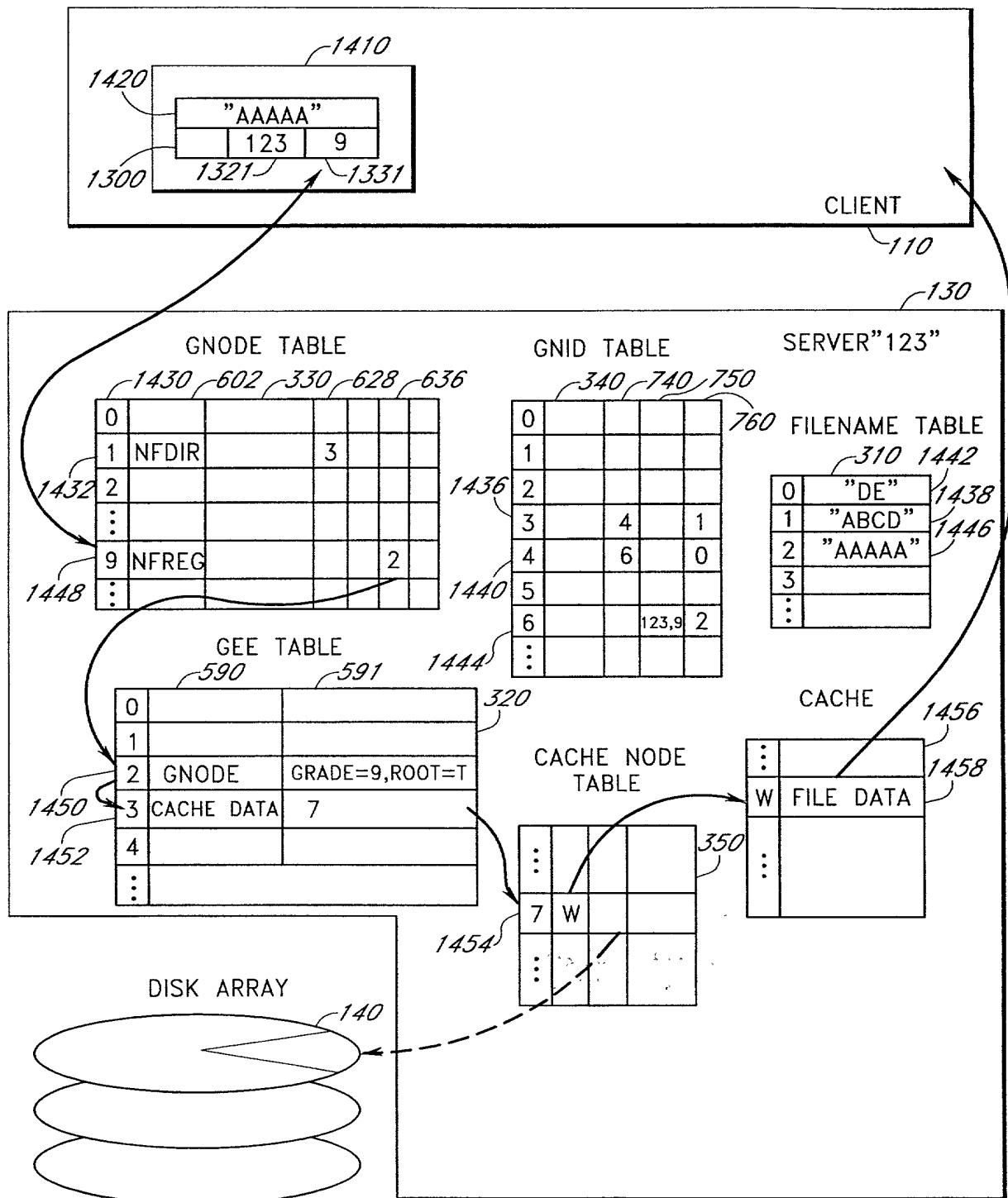


FIG. 14B

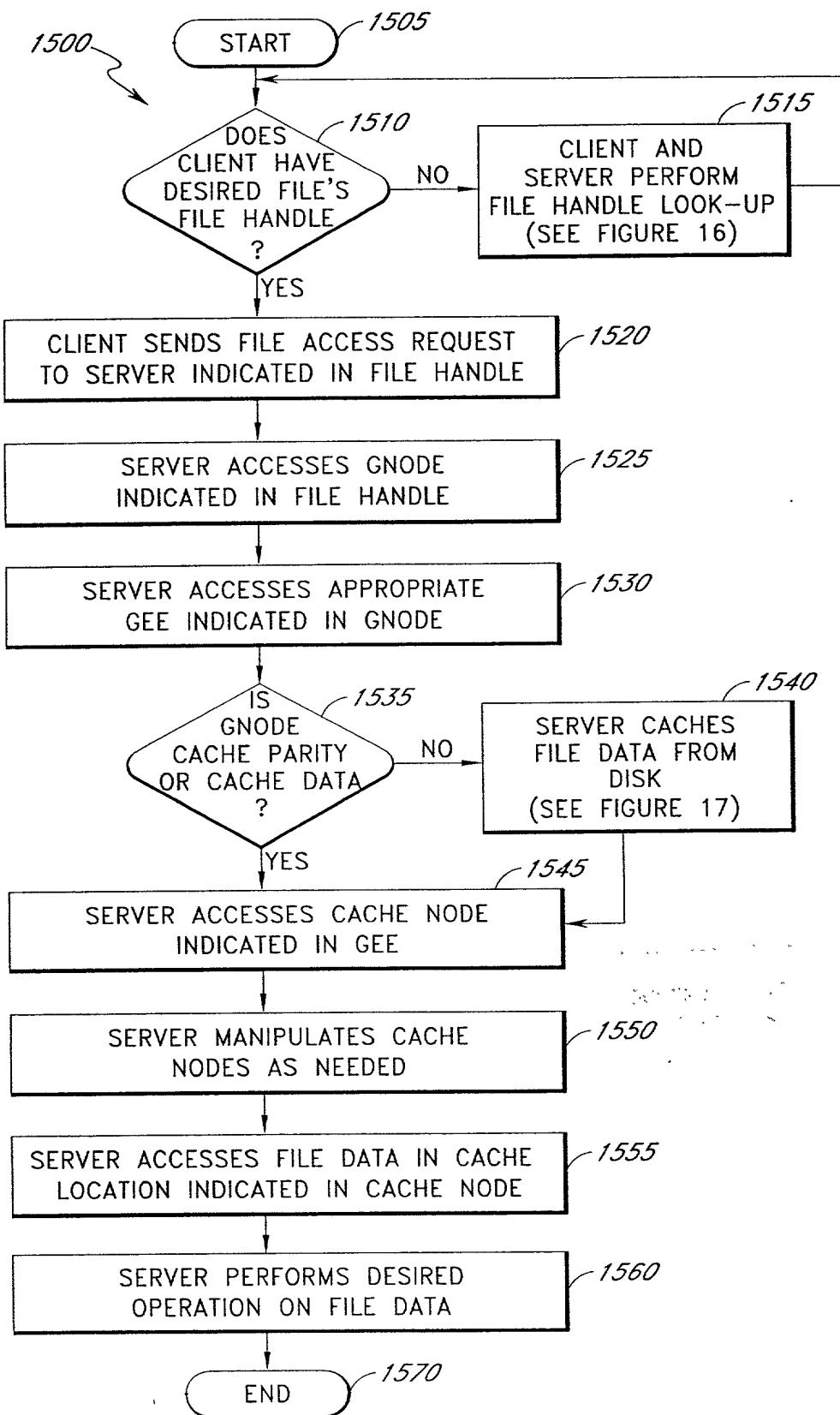


FIG. 15

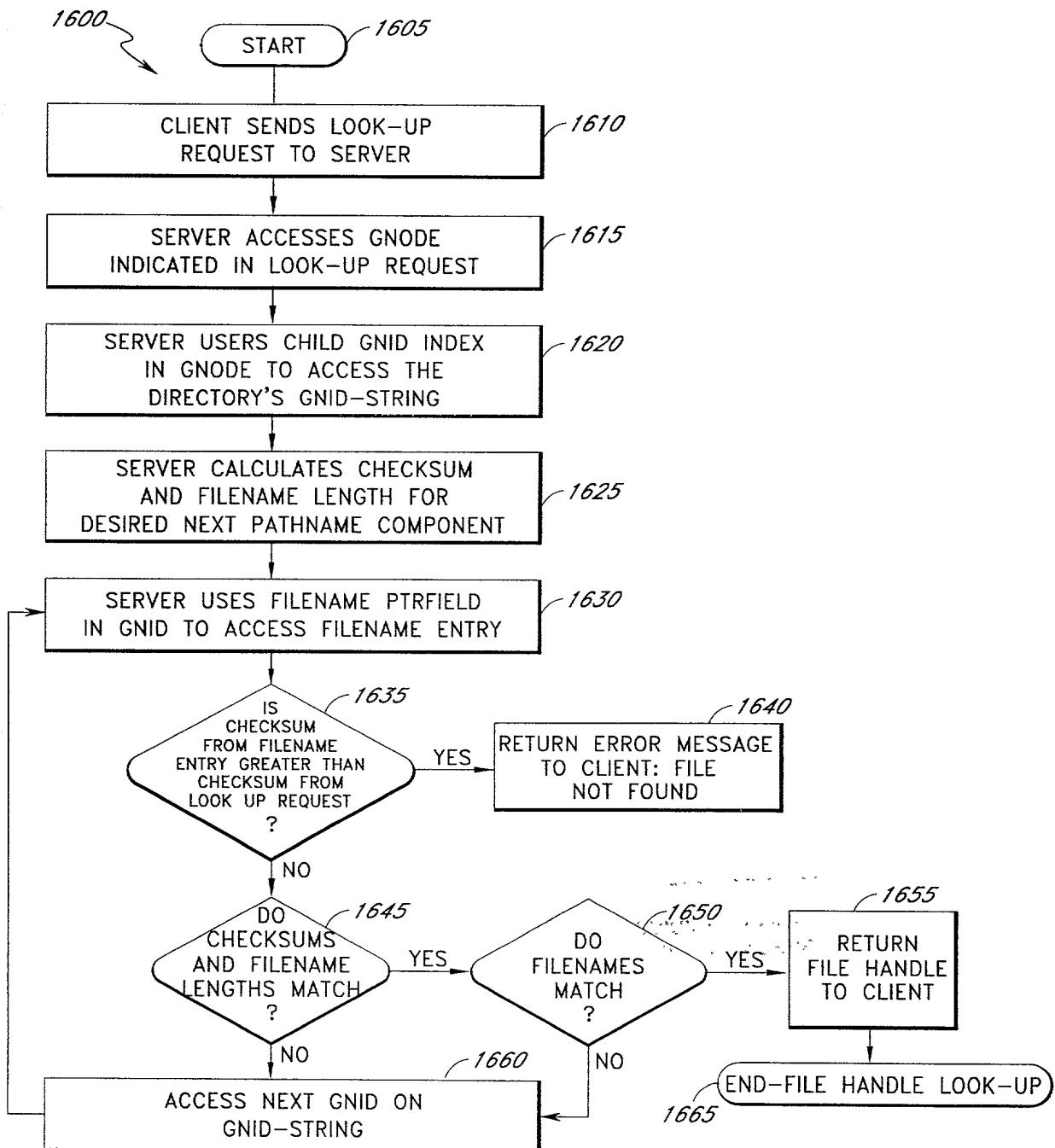


FIG. 16

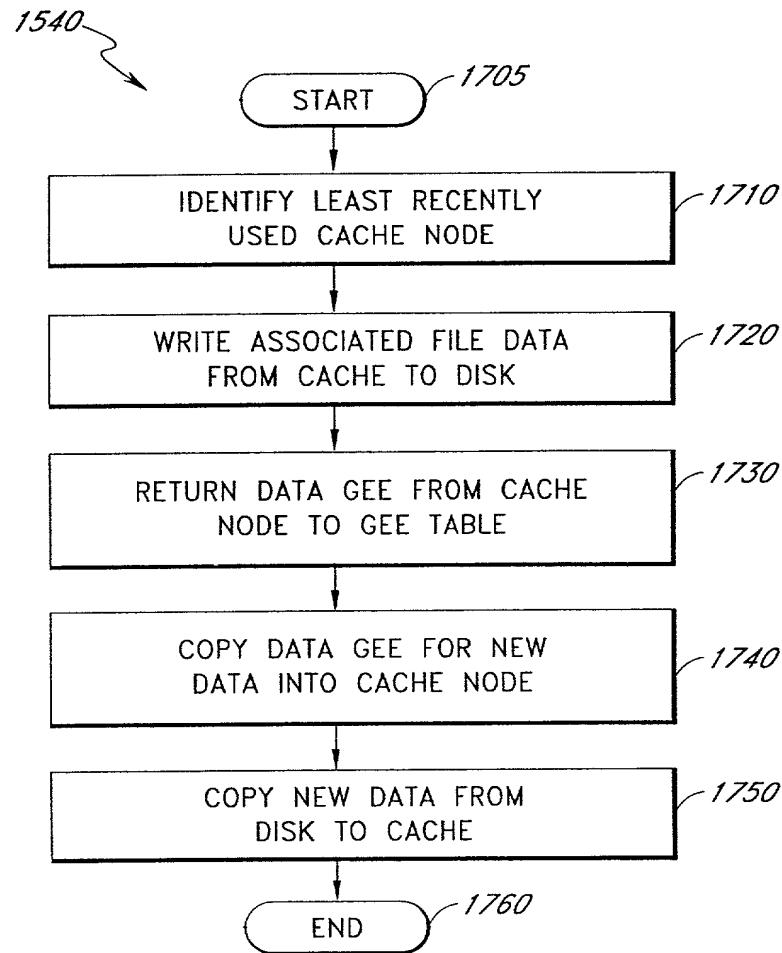


FIG. 17

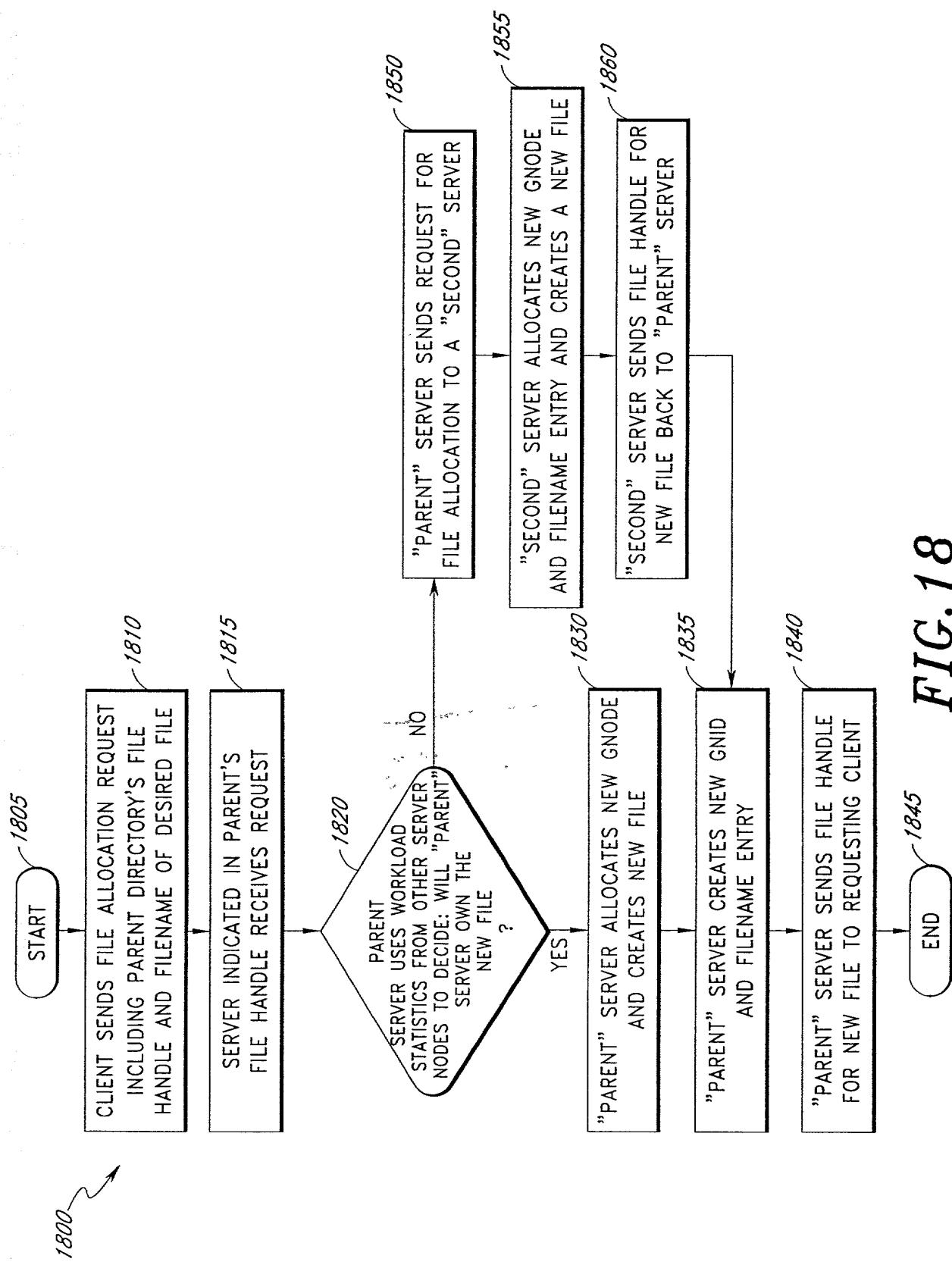


FIG. 18

DATA STRUCTURE DESIGN

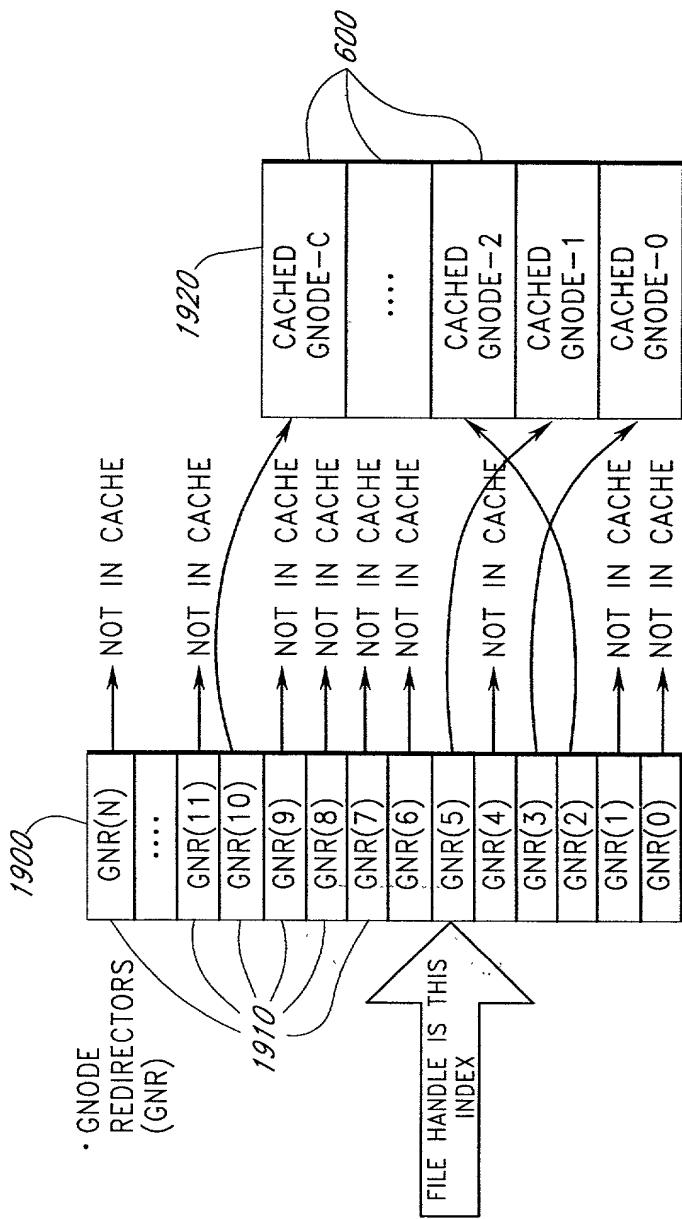


FIG. 19

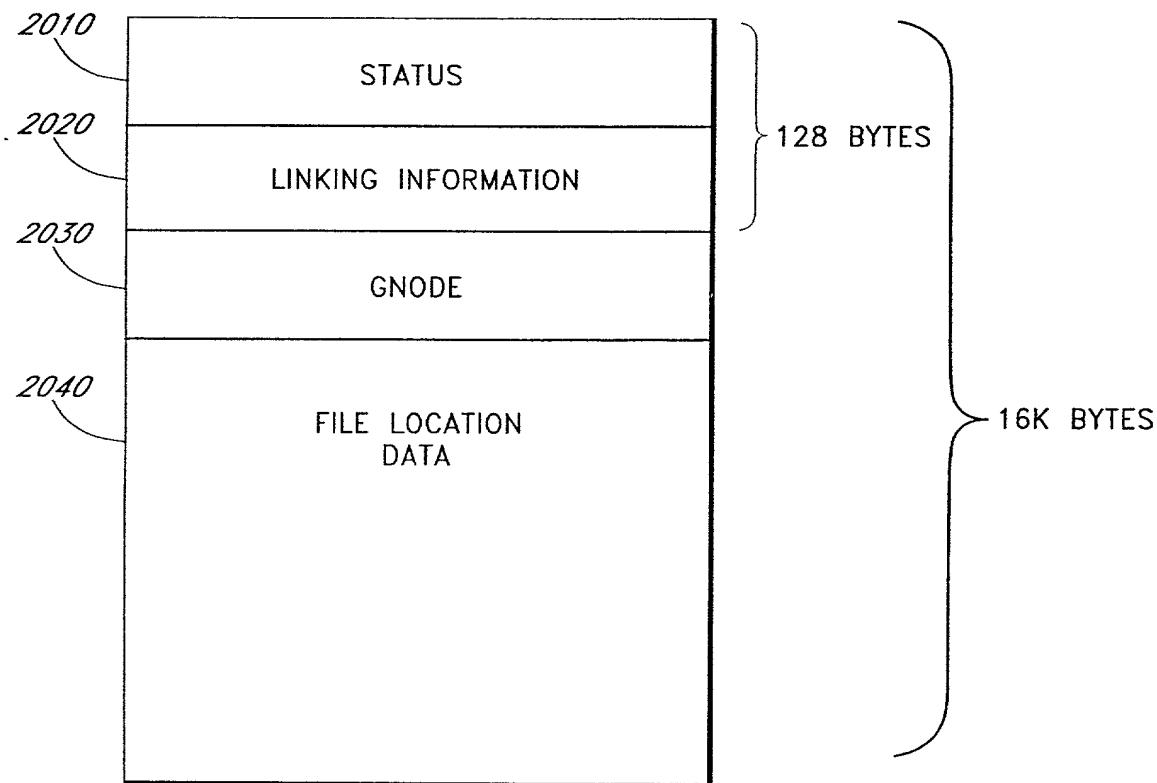


FIG.20A

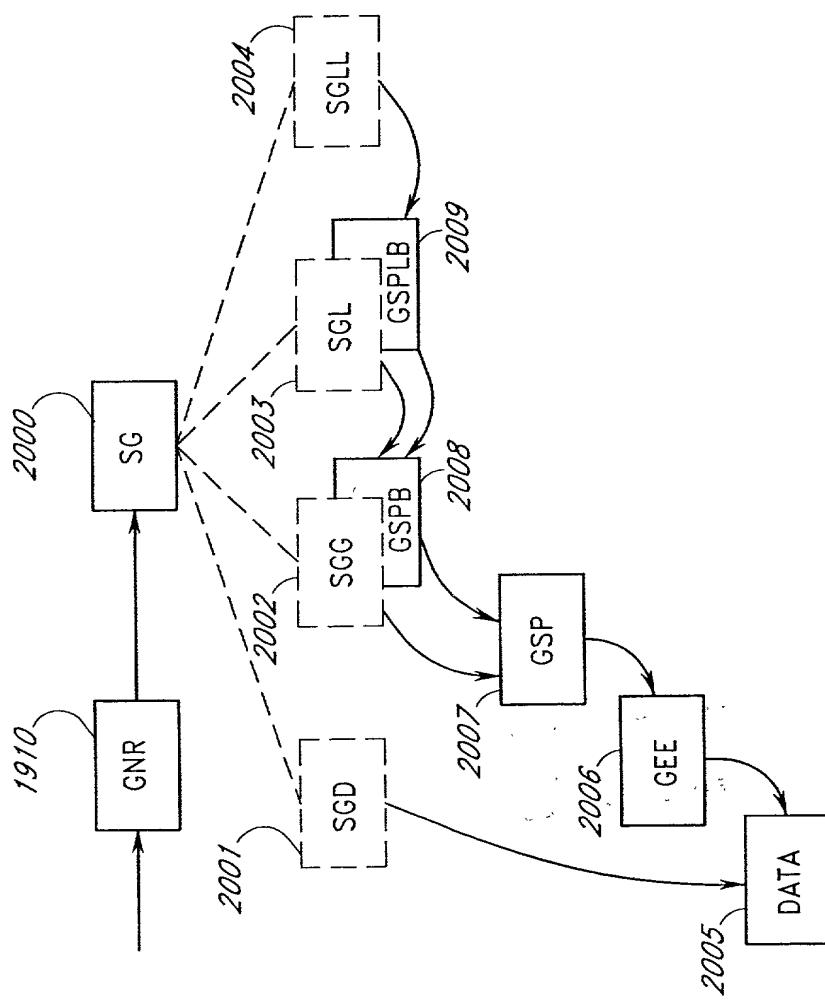


FIG. 20B

CONVENTIONAL RAID MAPPING
(PRIOR ART)

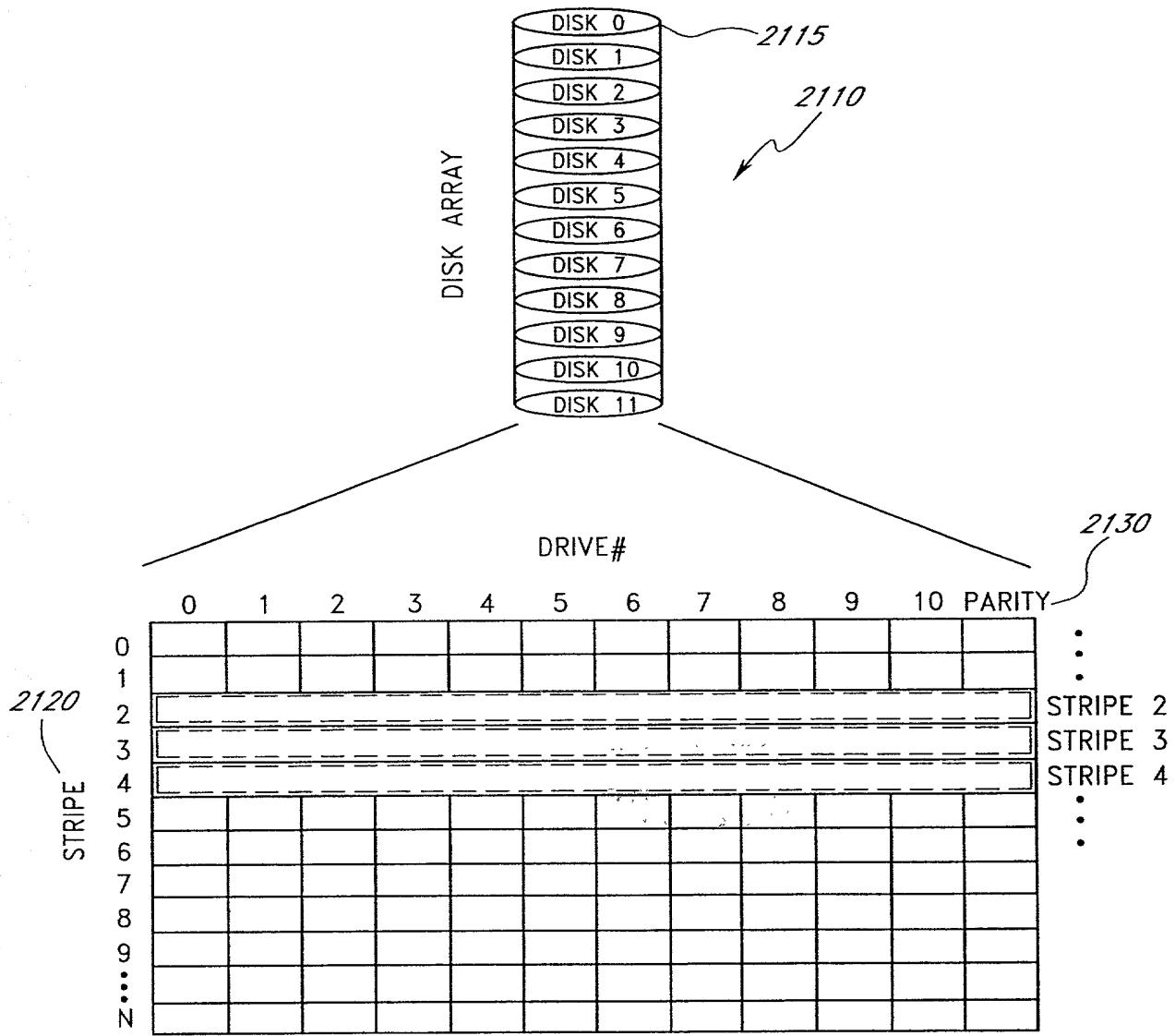


FIG. 21

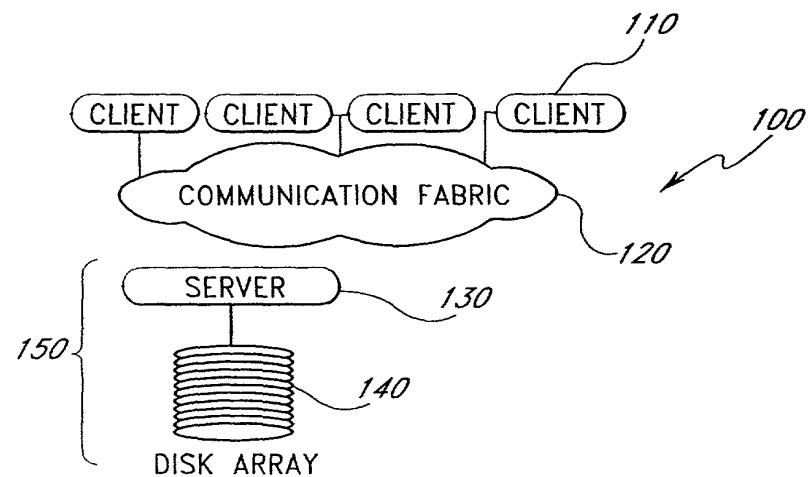


FIG.22A

4,035,327 1997.07.22

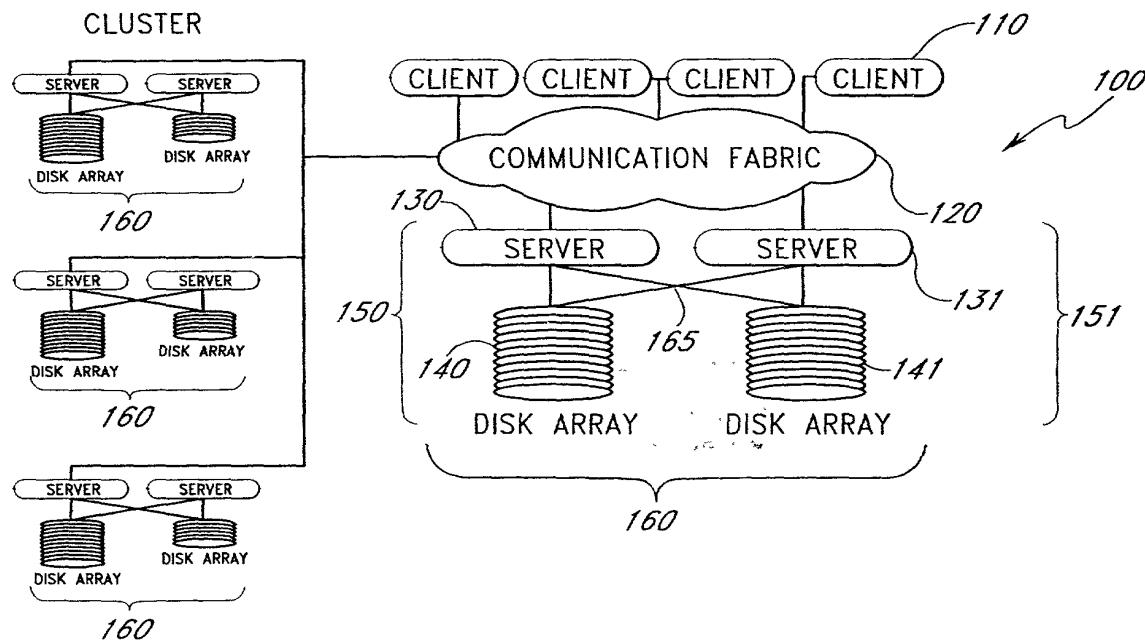


FIG.22B

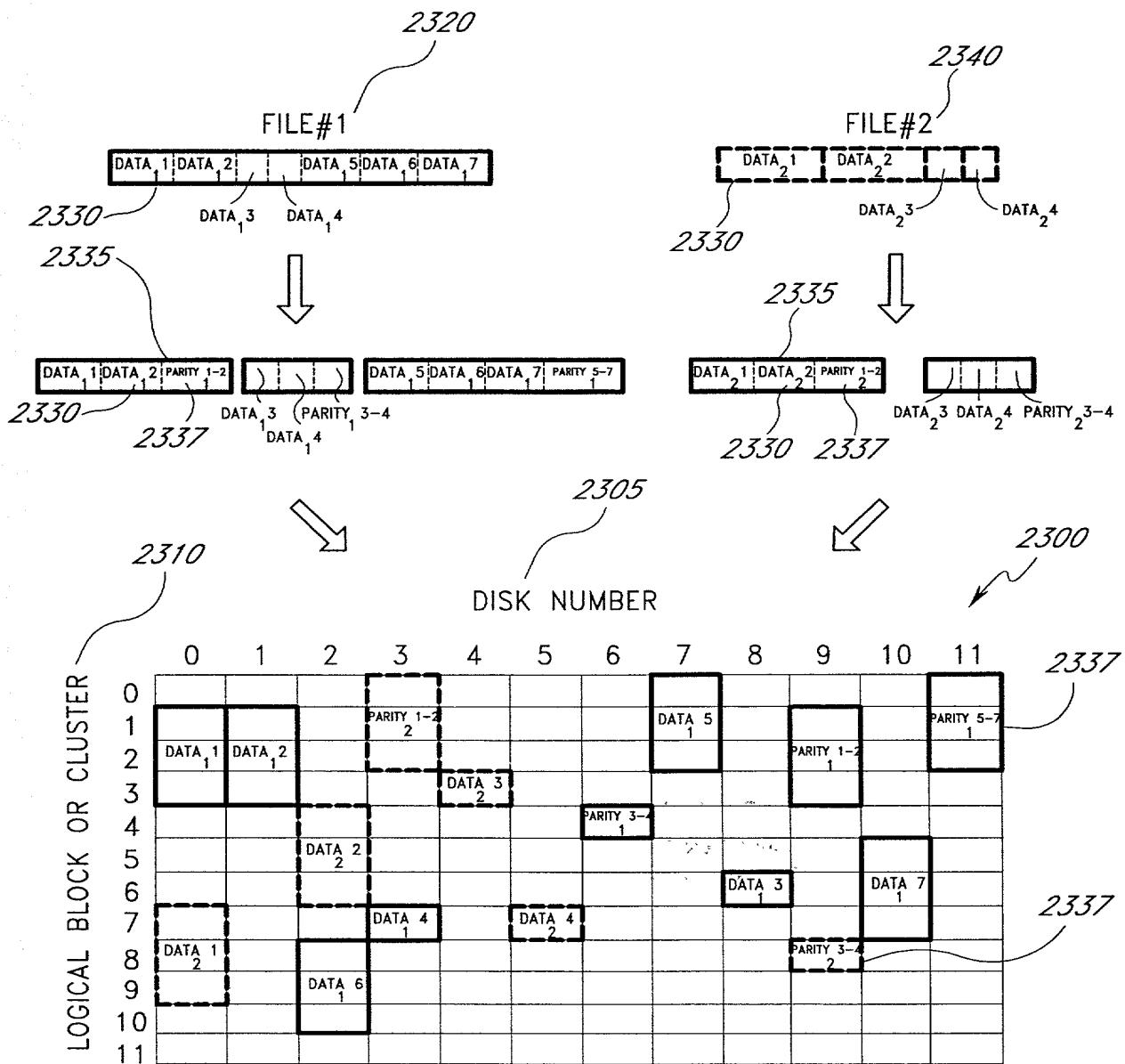


FIG. 23

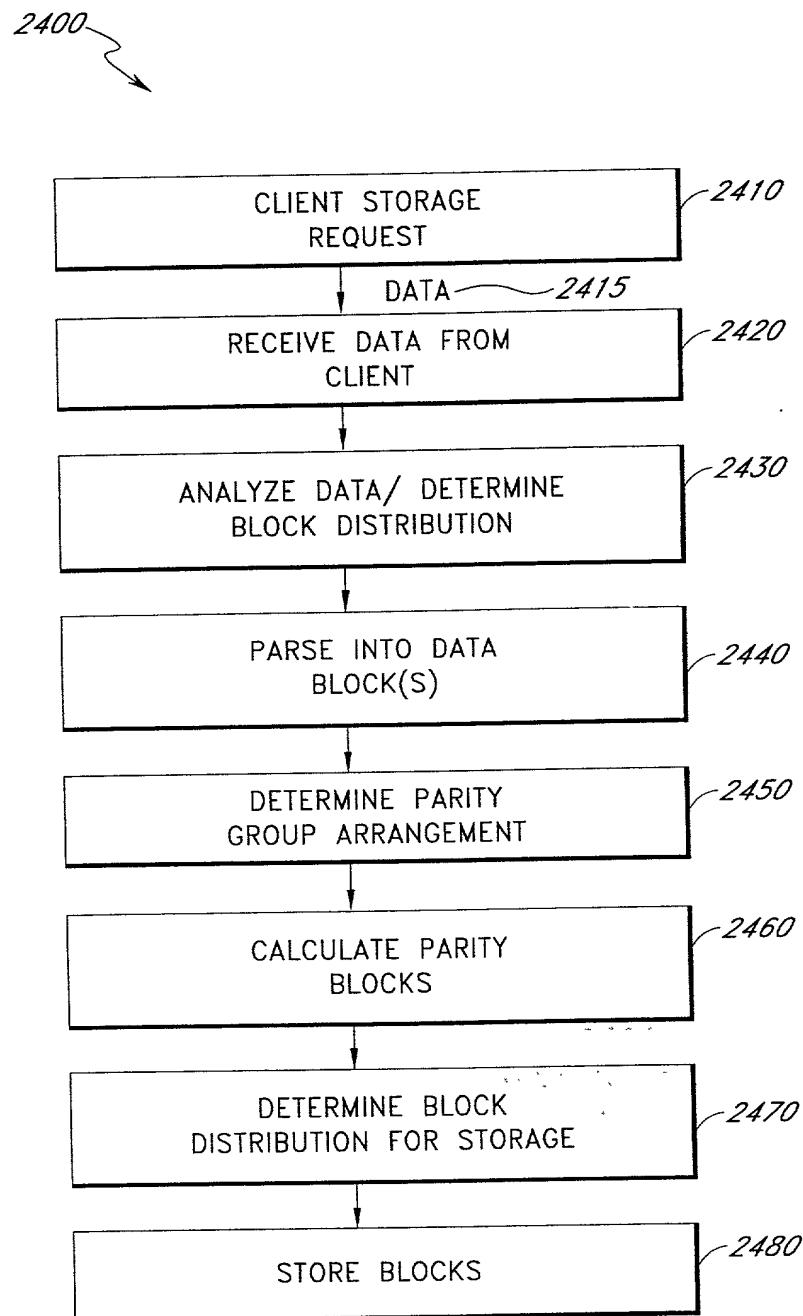


FIG.24A

APPENDIX 25070

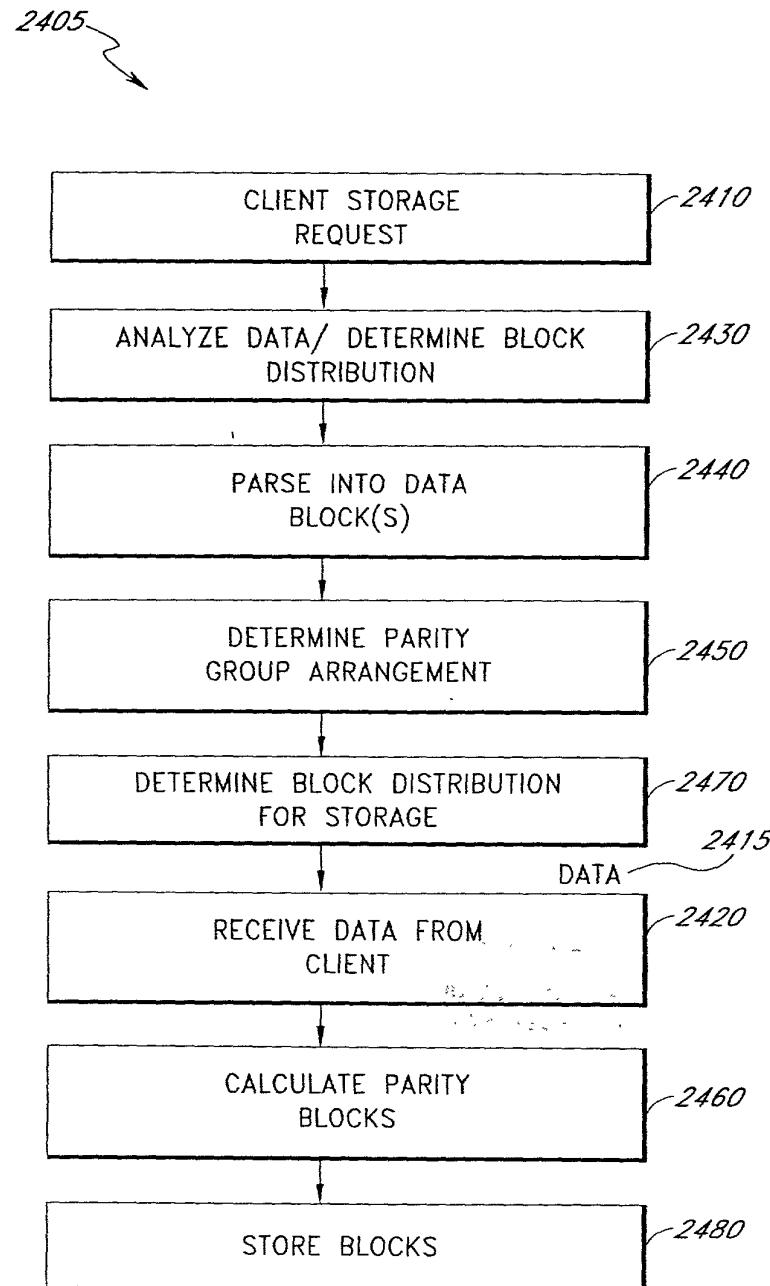


FIG. 24B

2300 2305 2310 2320 2330 2335 2340 2350 2360 2370 2380 2390

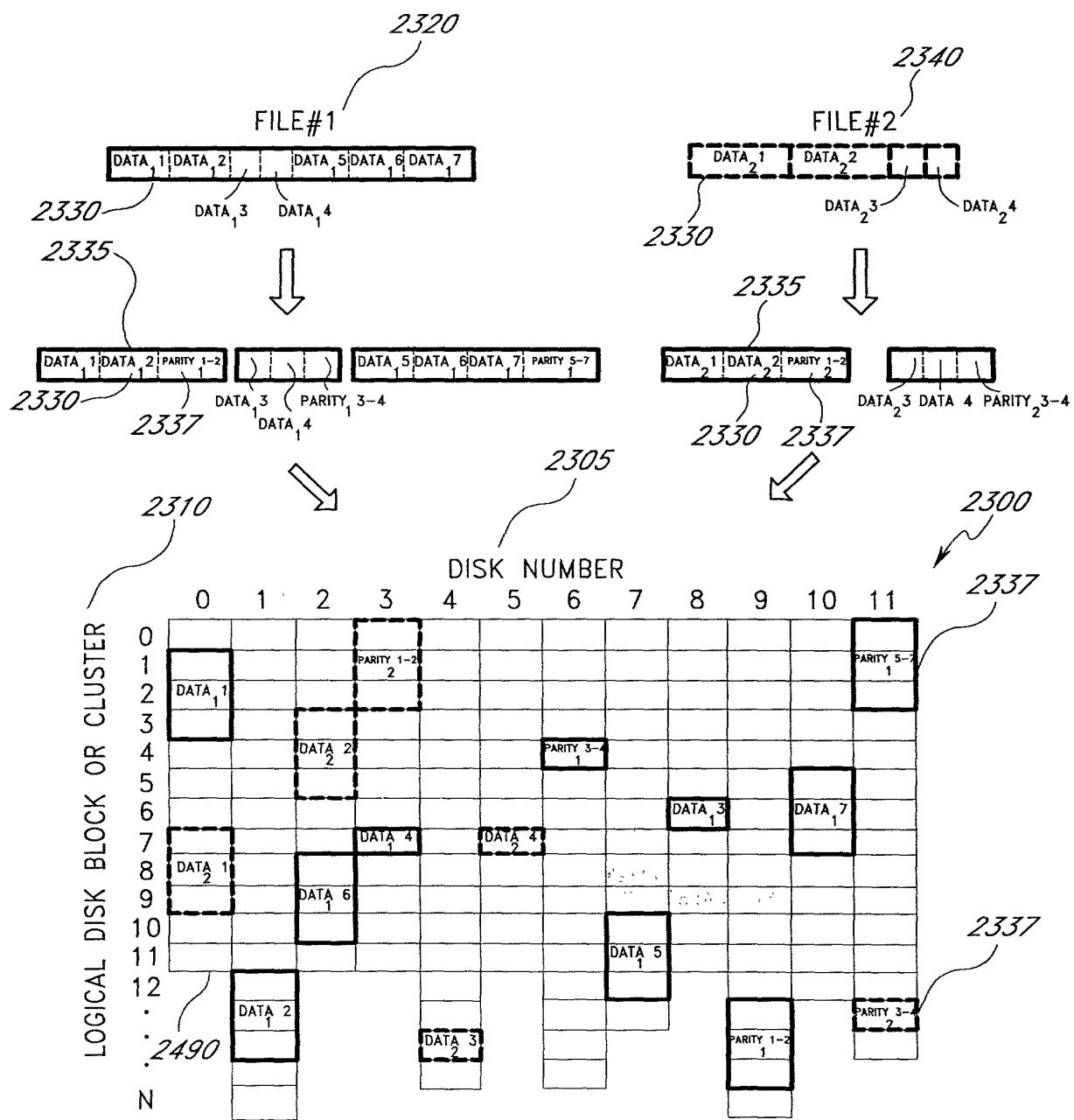


FIG. 25

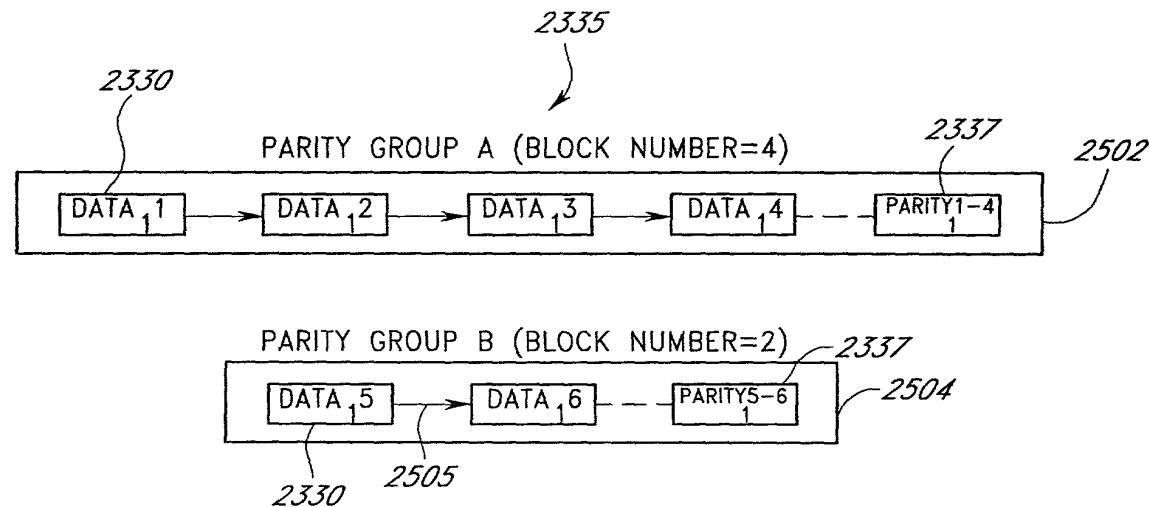


FIG. 26A

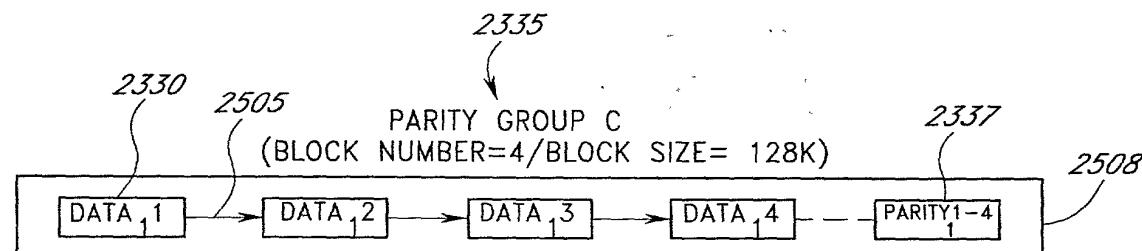
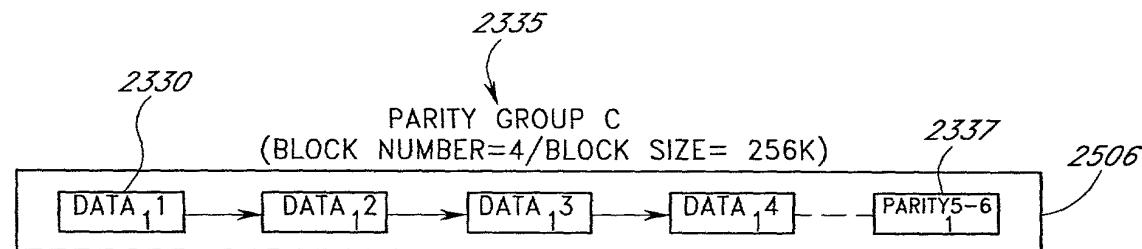


FIG. 26B

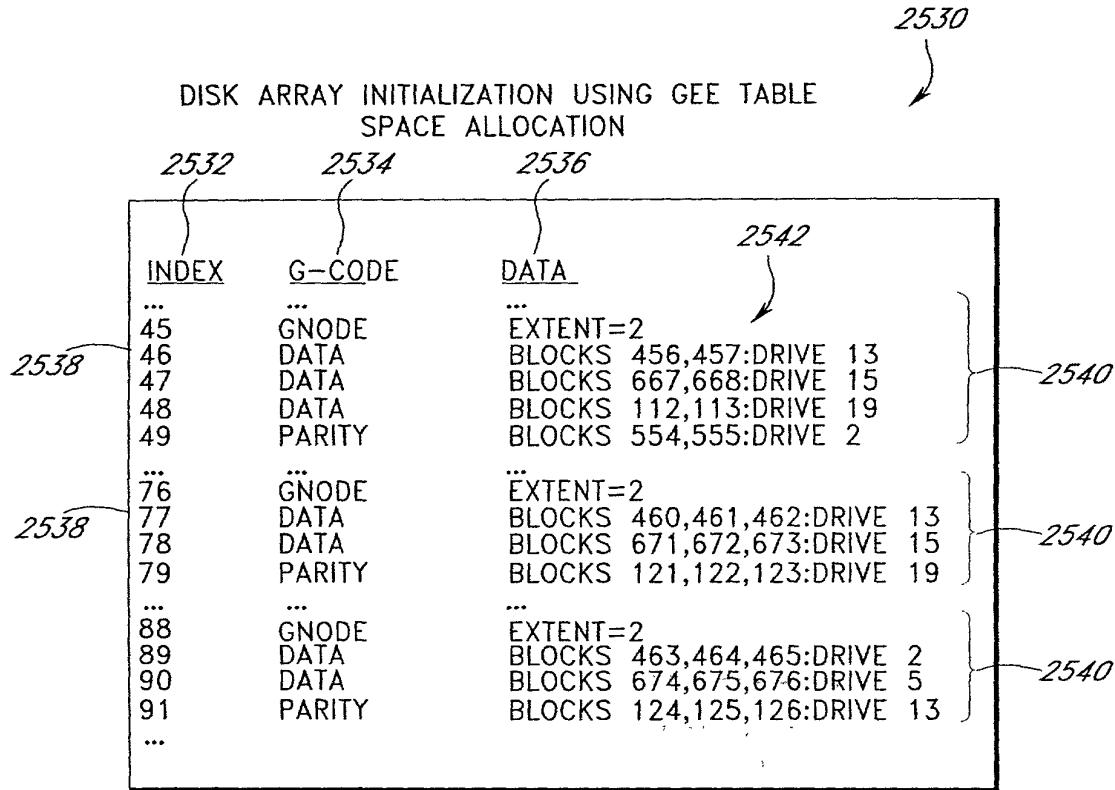


FIG.27

2448

ARRAY PREPARATION/ G-TABLE FORMATTING

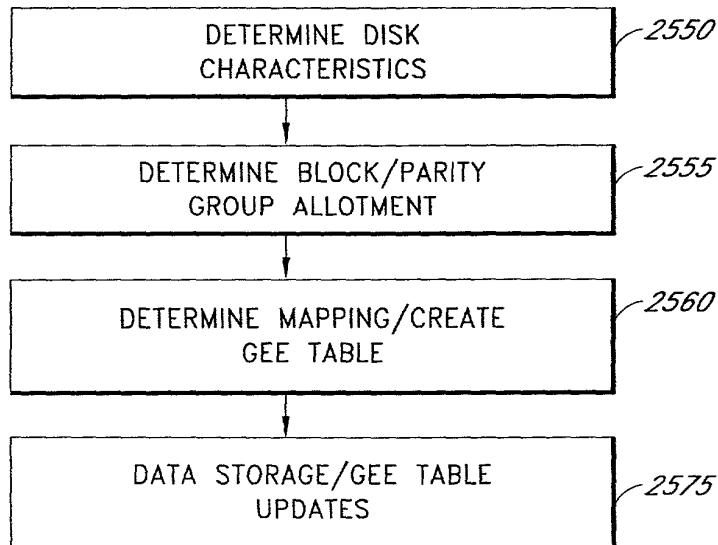


FIG.28

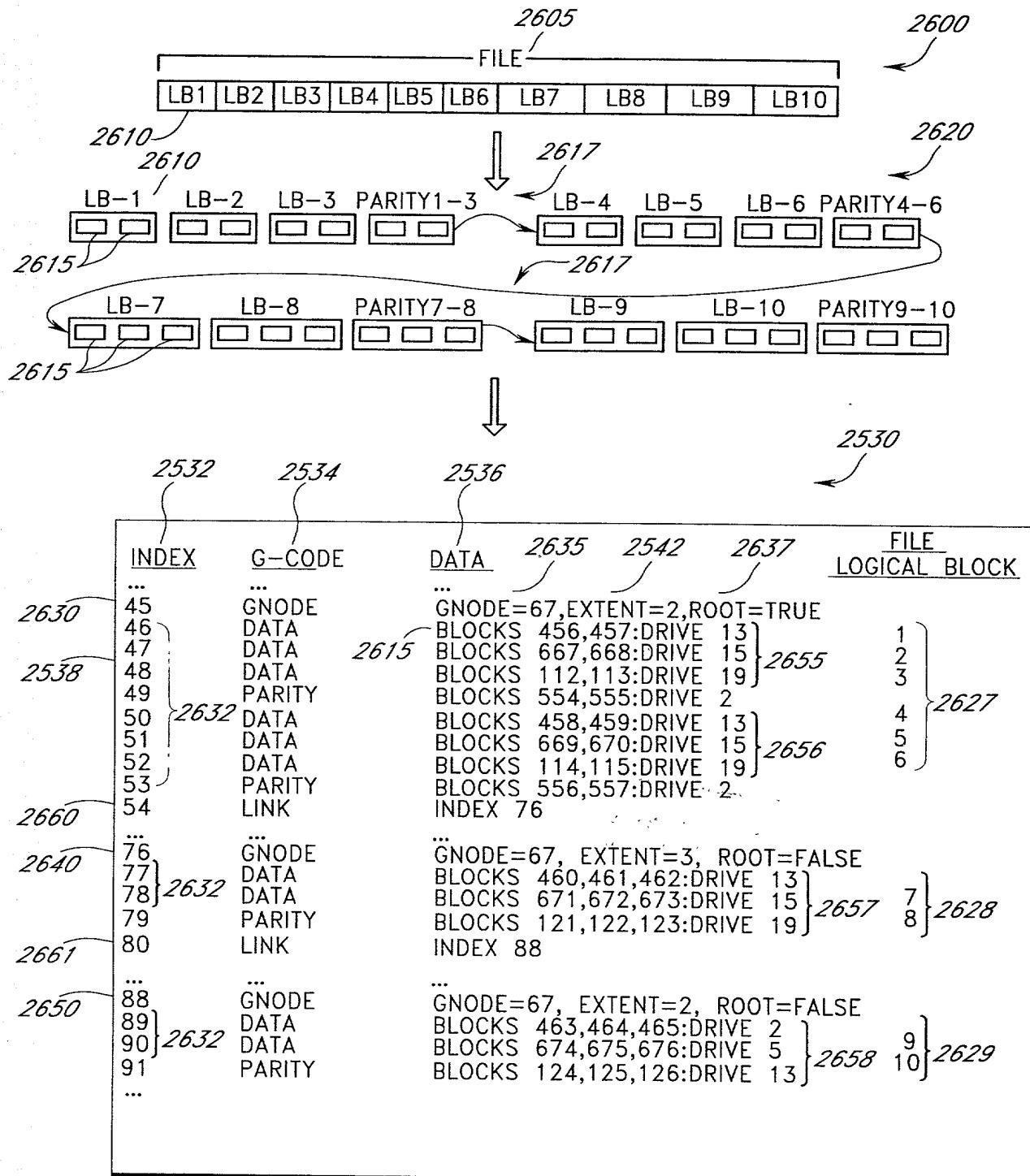


FIG. 29

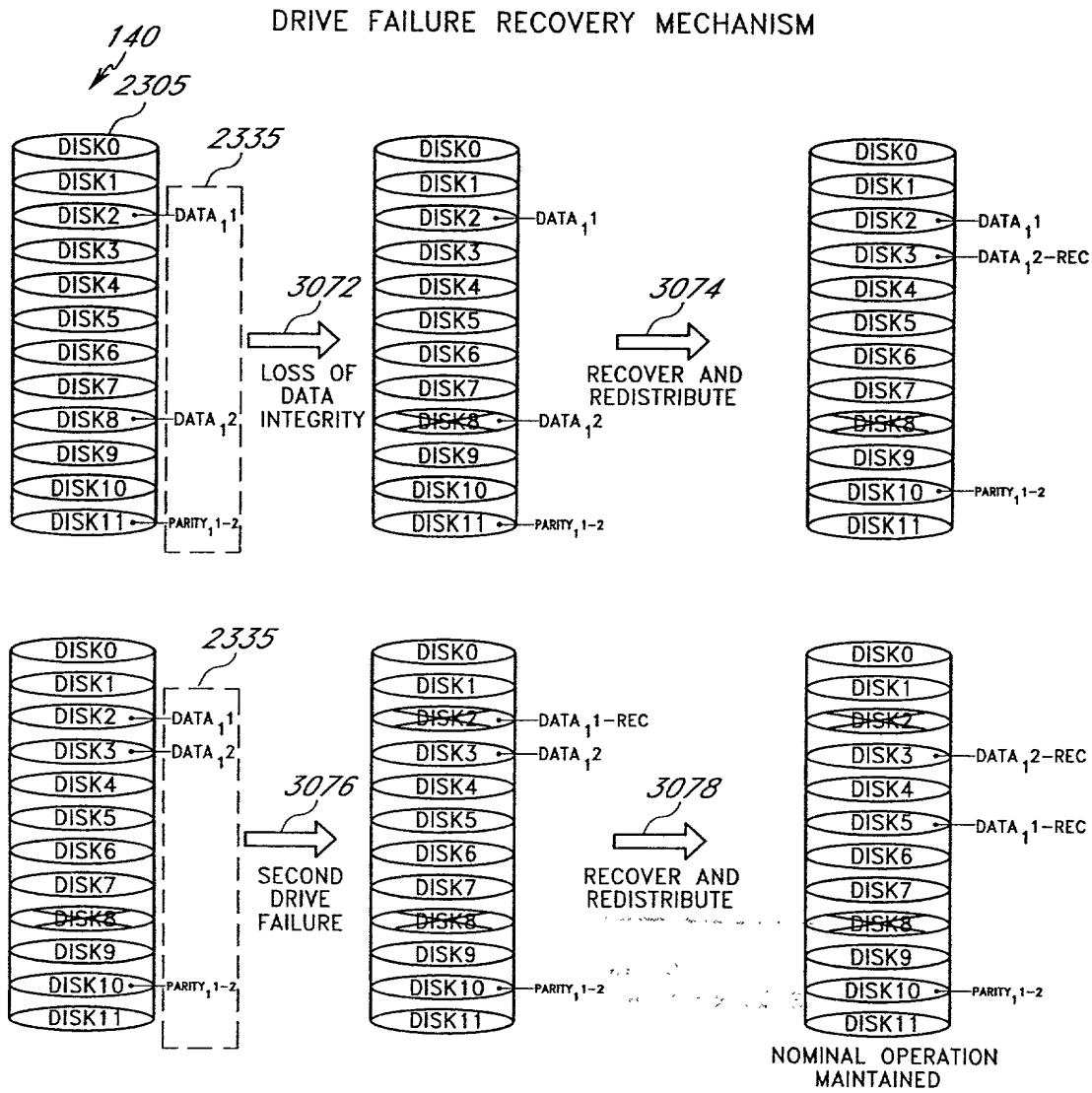


FIG.30

3172

DATA RECOVERY PROCESS

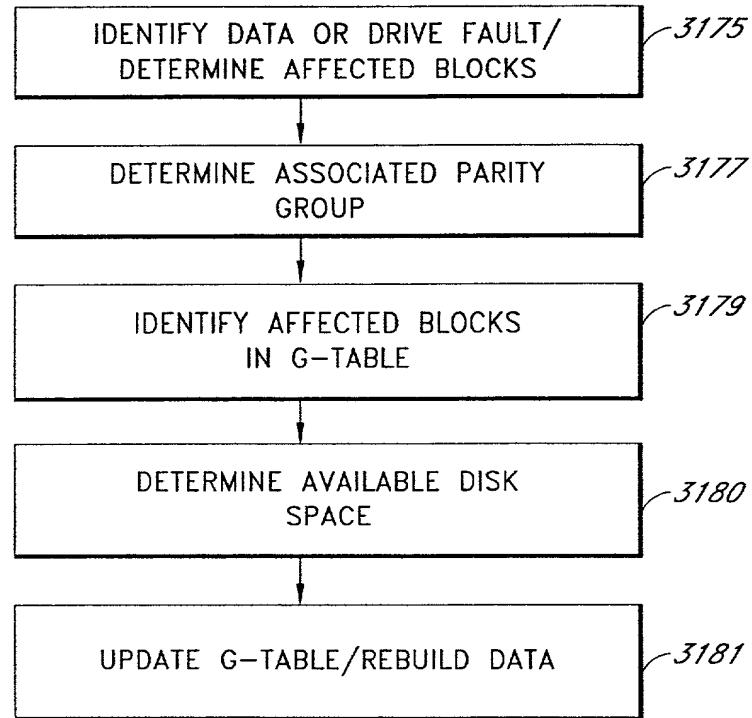
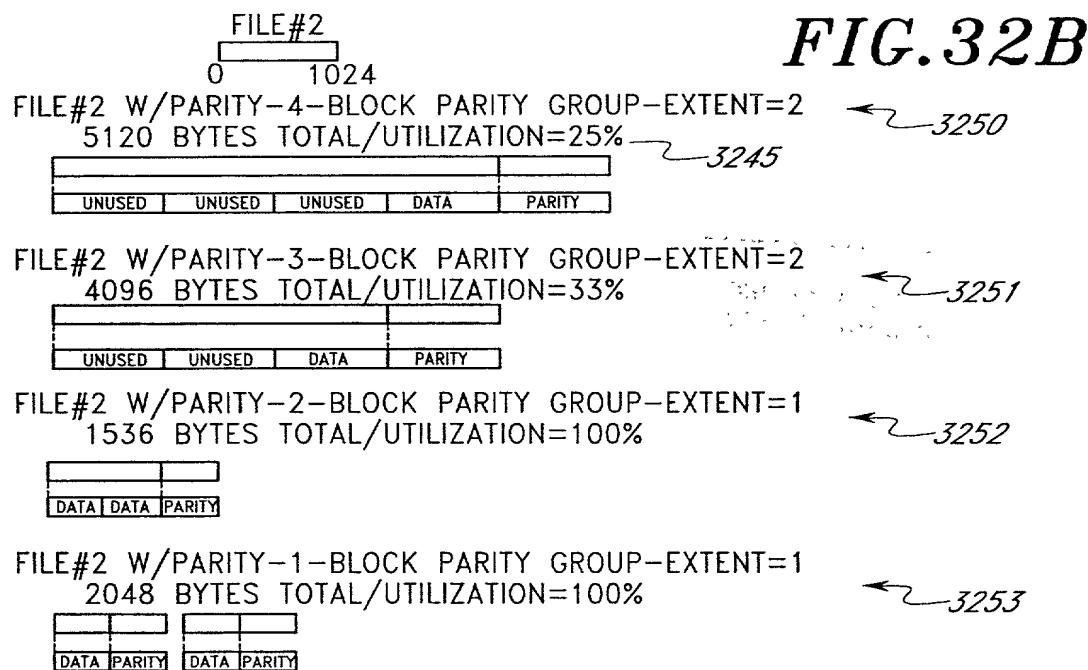
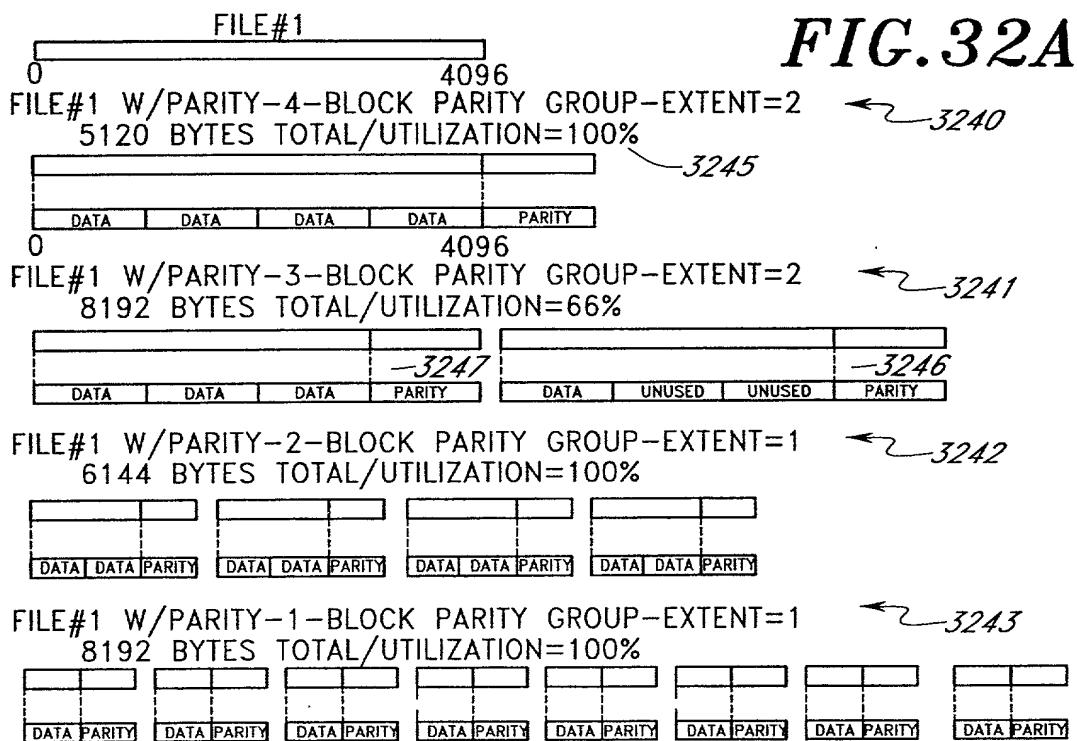


FIG. 31



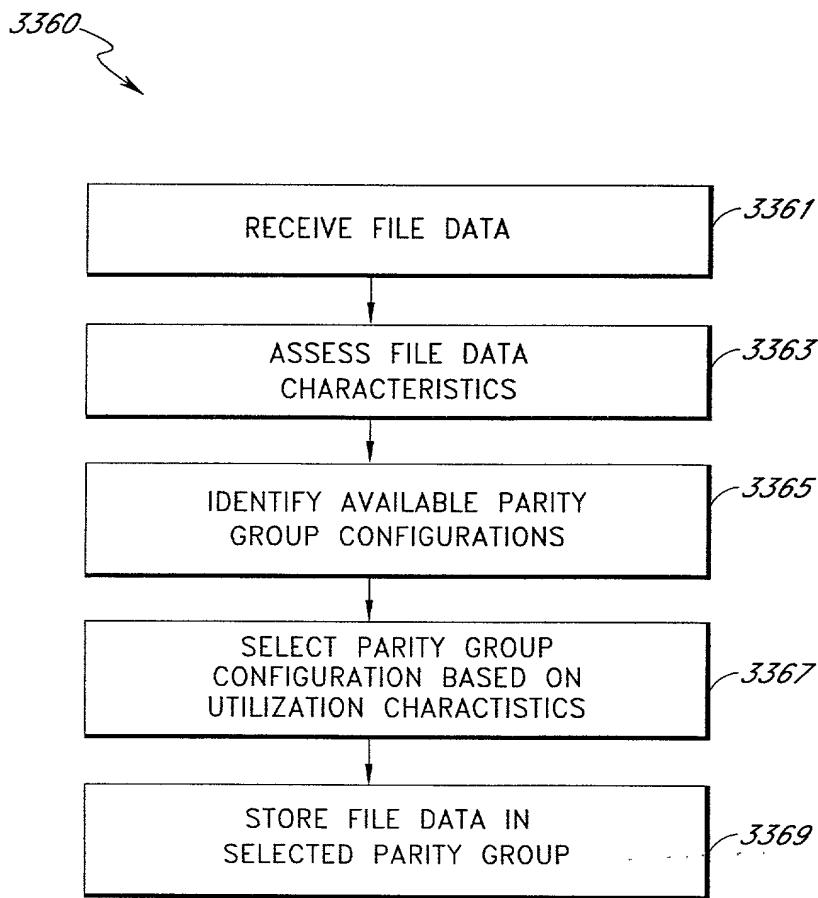


FIG.33

FIG. 34A

INITIAL ALLOCATION					3491 DISK SPACE%	3485
[DATA]	[DATA]	[DATA]	[DATA]	4 BLOCK PANITY	3480 10000 GROUPS	36%
[DATA]	[DATA]	[DATA]	PARITY	3 BLOCK PANITY	3481 10000 GROUPS	28%
[DATA]	[DATA]	PARITY		2 BLOCK PANITY	3482 10000 GROUPS	22%
[DATA]	PARITY			1 BLOCK PANITY	3483 10000 GROUPS	14%

FIG. 34B

3492	FREE	OCCUPIED	TOTAL	DISK SPACE%
3480	4 BLOCK PANITY	2500 GROUPS	7500 GROUPS	10000 GROUPS 36%
3481	3 BLOCK PANITY	7500 GROUPS	2500 GROUPS	10000 GROUPS 28%
3482	2 BLOCK PANITY	3500 GROUPS	6500 GROUPS	10000 GROUPS 22%
3483	1 BLOCK PANITY	500 GROUPS	9500 GROUPS	10000 GROUPS 14%

FIG. 34C

3492	FREE	OCCUPIED	TOTAL	DISK SPACE%
3480	4 BLOCK PANITY	2500 GROUPS	7500 GROUPS	10000 GROUPS 36%
3481	3 BLOCK PANITY	-5000 GROUPS OF 3 BLOCK PARITY	2500 groups	5000 GROUPS 14%
3482	2 BLOCK PANITY	+10000 GROUPS OF 1 BLOCK PARITY	3500 GROUPS	6500 GROUPS 22%
3483	1 BLOCK PANITY		10500 GROUPS	9500 GROUPS 28% REDISTRIBUTION

PARITY GROUP REDISTRIBUTION PROCESSES

FIG. 35A

PARITY GROUP DISSOLUTION

5-BLOCK PARITY GROUP

DATA	DATA	DATA	DATA	DATA	PARTY
------	------	------	------	------	-------

3520



1-BLOCK PARITY GROUP

DATA	PARTY
------	-------

3-BLOCK PARITY GROUP

DATA	DATA	DATA	PARTY
------	------	------	-------

3515

3525

OR

2-BLOCK PARITY GROUP

DATA	DATA	PARTY
------	------	-------

2-BLOCK PARITY GROUP

DATA	DATA	PARTY
------	------	-------

3530

OR

1-BLOCK PARITY GROUP

DATA	PARTY
------	-------

1-BLOCK PARITY GROUP

DATA	PARTY
------	-------

1-BLOCK PARITY GROUP

DATA	PARTY
------	-------

3520

FIG. 35B

PARITY GROUP CONSOLIDATION

3535

3-BLOCK PARITY GROUP

DATA	DATA	DATA	PARTY
------	------	------	-------

2-BLOCK PARITY GROUPS

DATA	DATA	PARTY
------	------	-------

3530



DATA	DATA	PARTY
------	------	-------

1-BLOCK PARITY GROUP

DATA	PARTY
------	-------

3525

OR

3-BLOCK PARITY GROUP

DATA	DATA	DATA	DATA	DATA	PARTY
------	------	------	------	------	-------

3515

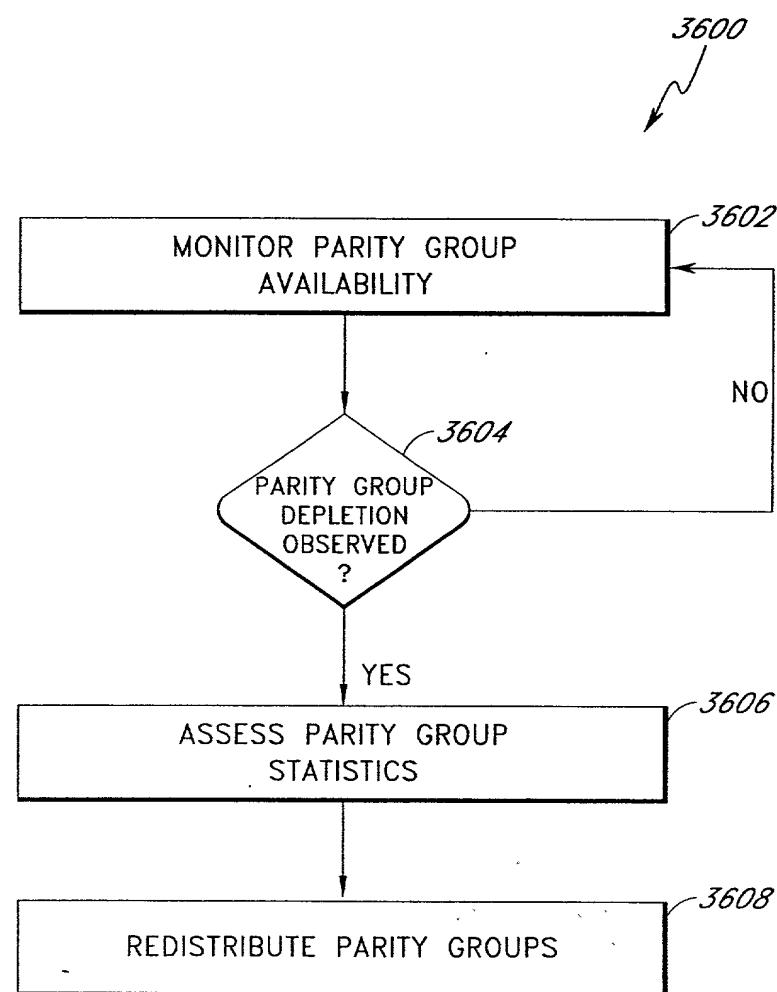


FIG. 36

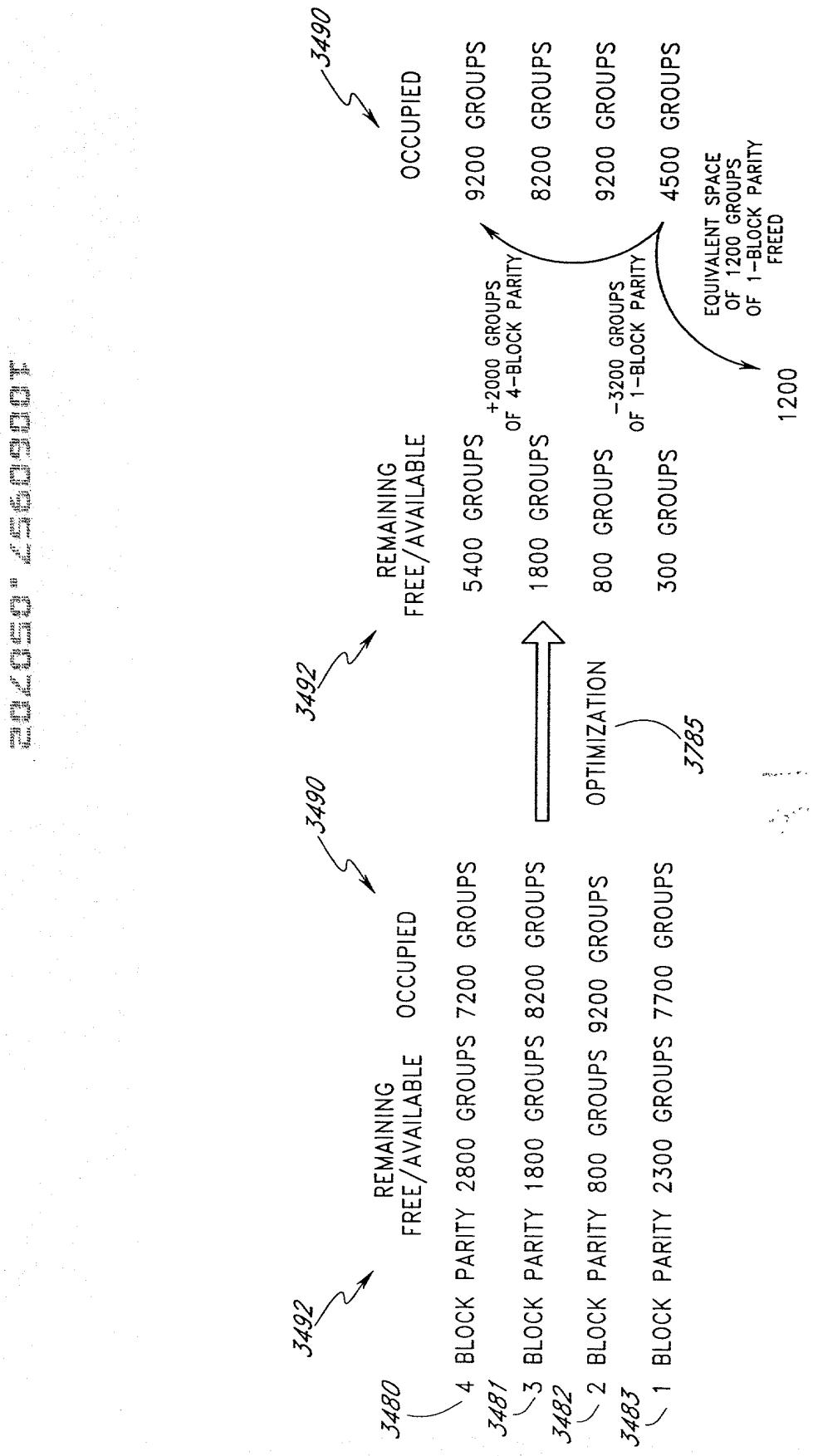


FIG. 37

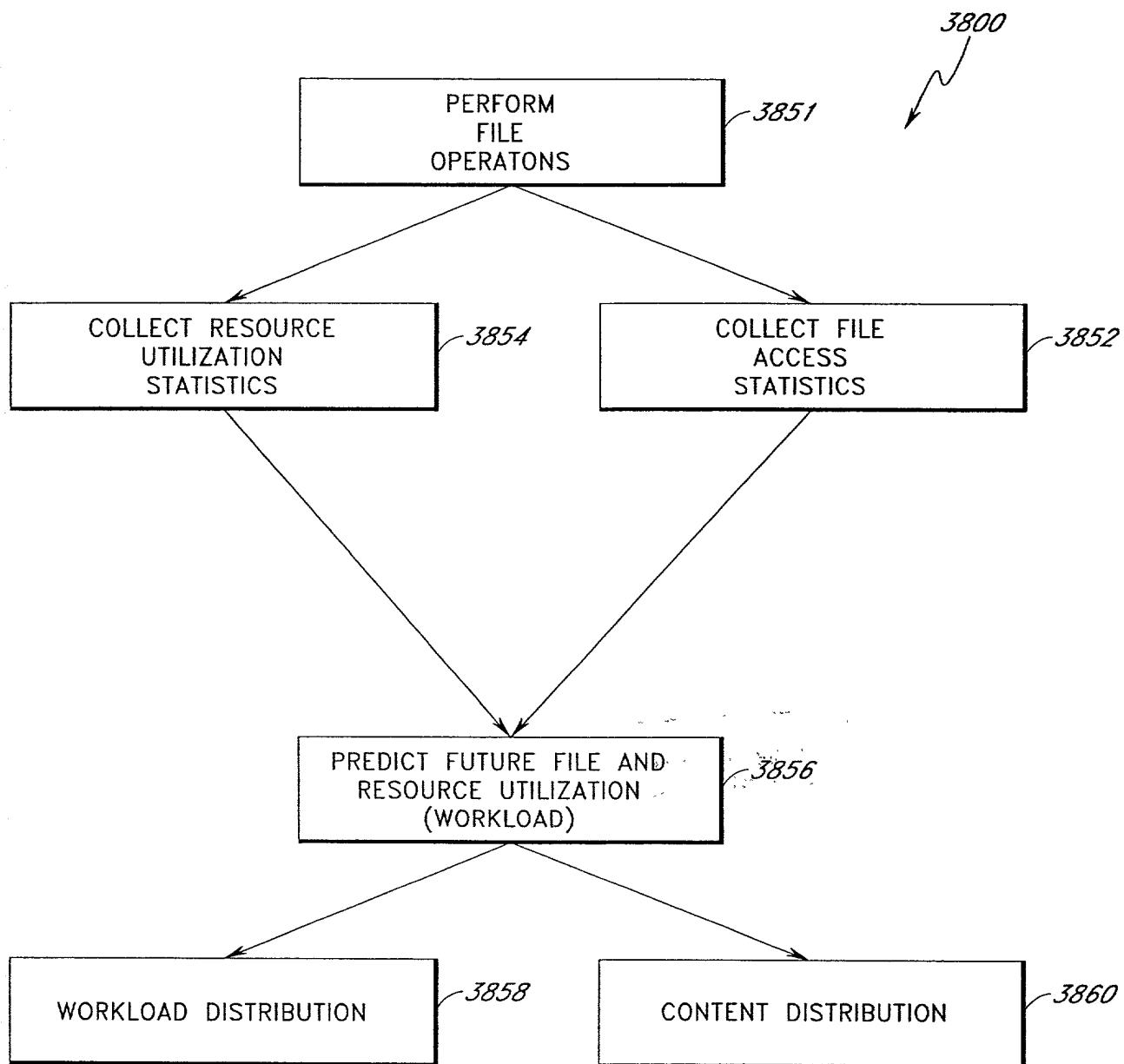
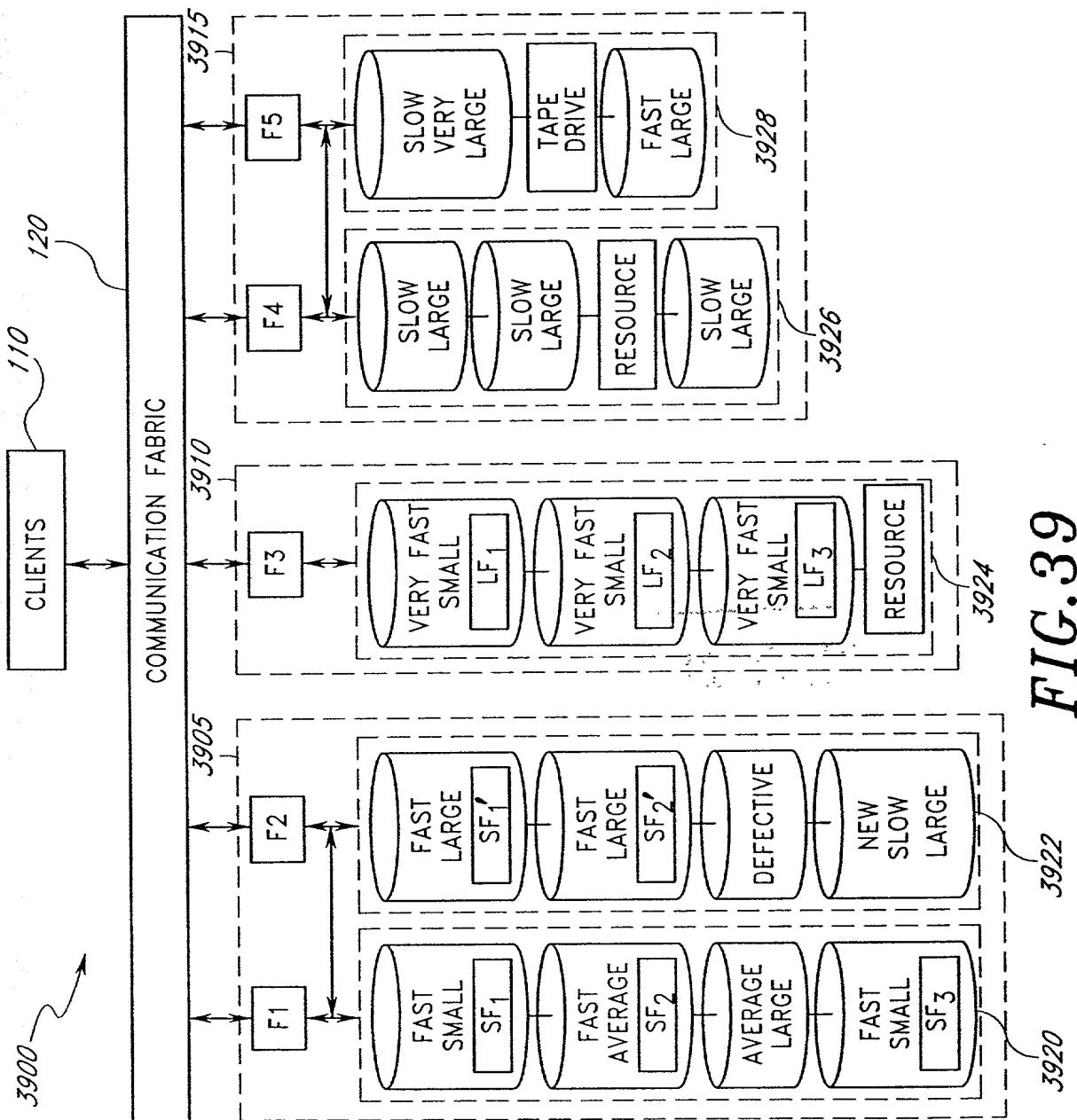


FIG.38



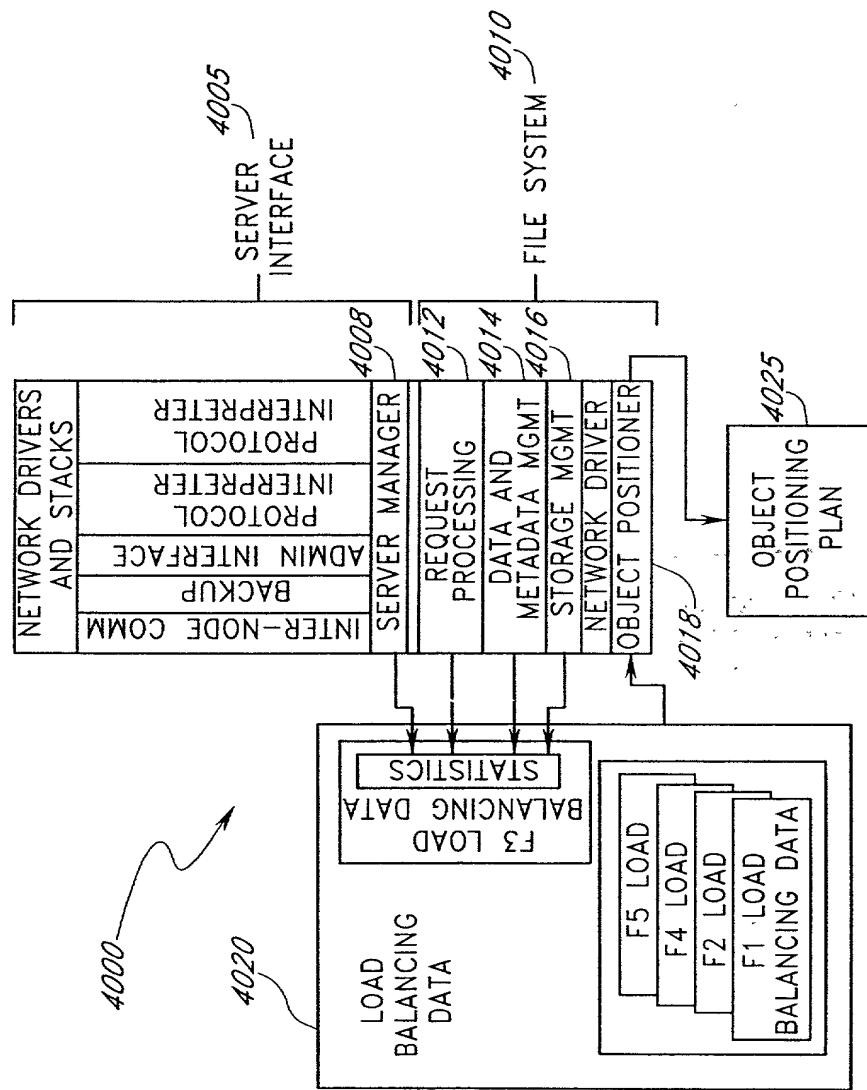


FIG. 40

F3 OBJECT POSITIONING PLAN

- PUSH LF TO F4-F5 CLUSTER
- ISSUE FILE HANDLE FOR LF=STALE
- IF REQUESTED,
 - SEND ACCEPTANCE FOR COPY OF SF TO F1
 - CREATE COPY OF SF
 - SEND FILE HANDLE OF SF TO F1

4025

FIG. 41

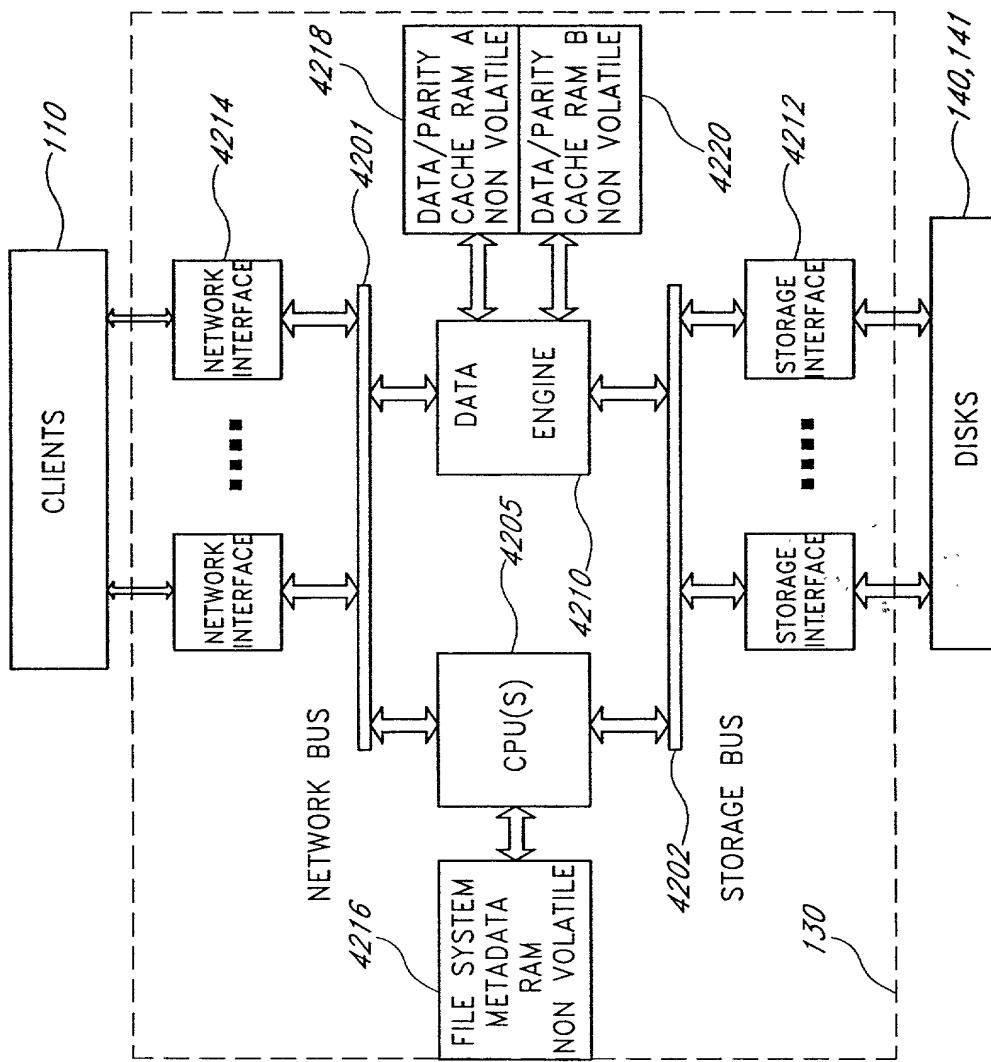


FIG. 42

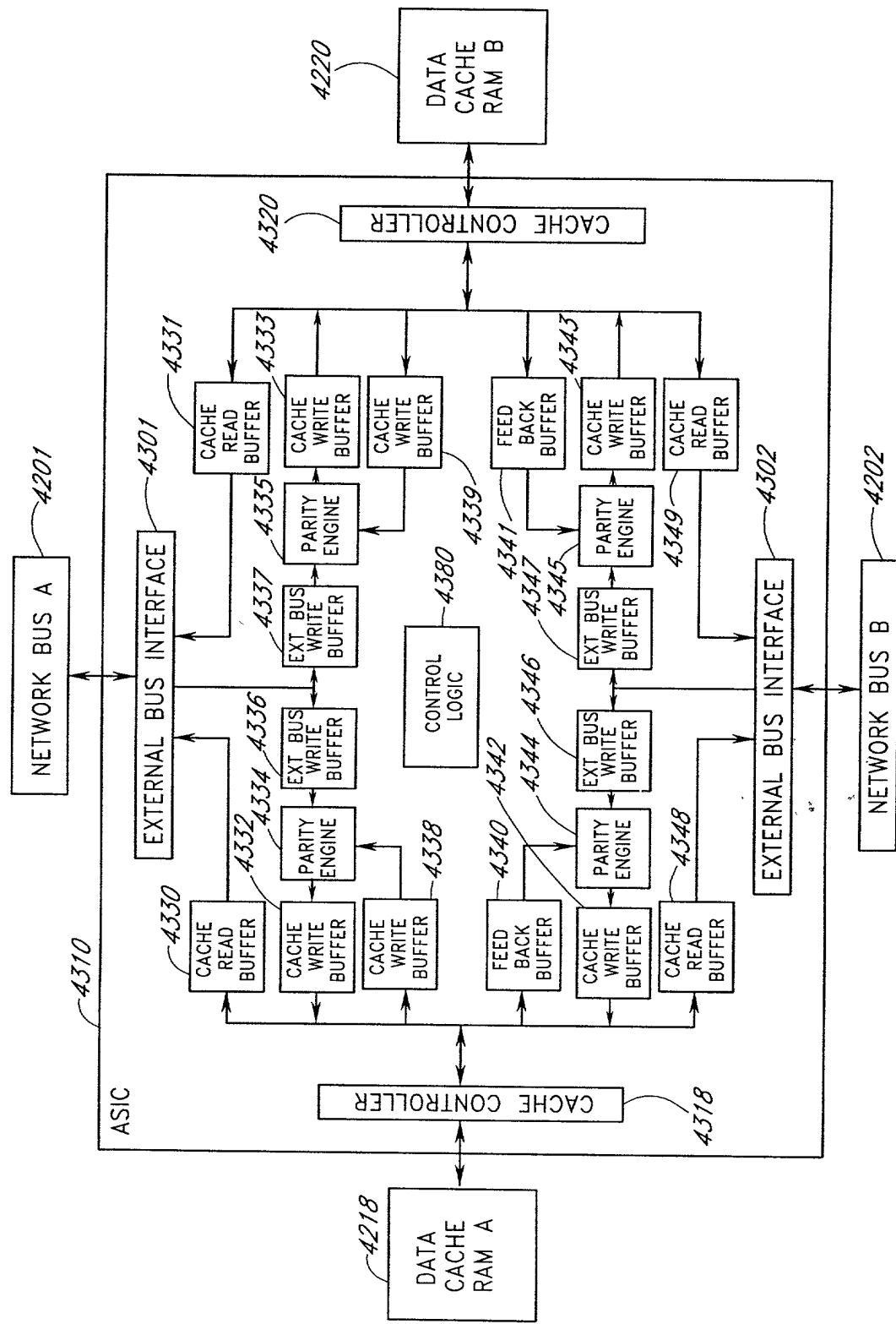


FIG. 43

PCI MAP	BLOCK SIZE	OPCODE	SPARE	PARITY INDEX	SPARE	RAM ADR
---------	------------	--------	-------	--------------	-------	---------

63.....62,61.....59,58.....56,55.....51,50.....35,34,32, 31.....0

FIG. 44

4400